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OF

TUBERCULOSIS

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THE DEPARTMENTAL COMMITTEE'S REPORT ON TUBERCULOSIS.

On February 22, 1912, in connection with the work of the National Health Insurance Commission, a Departmental Committee was appointed "To report at an early date upon the consideration of general policy in respect of the problem of tuberculosis in the United Kingdom, in its preventive, curative, and other aspects, which should guide the Government and local bodies in making or aiding provision for the treatment of tuberculosis in sanatoria or other institutions or otherwise."[1] The Committee was originally constituted as follows: Mr. Waldorf Astor, M.P. (Chairman), Dr. Christopher Addison, M.P., Dr. N. D. Bardswell, Mr. David Davies, M.P., Dr. A. Mearns Fraser, Dr. Arthur Latham, Dr. W. Leslie Mackenzie, Dr. John C. McVail, Dr. W. J. Maguire, Sir George Newman, M.D., Dr. Arthur Newsholme, Dr. James Niven, Dr. Marcus Paterson, Sir R. W. Philip, M.D., Dr. H. Meredith Richards, Mr. T. J. Stafford, Dr. Jane Walker, Mr. J. Smith Whitaker, and Mr. F. J. Willis (Secretary). In March, 1912, Mr. A. Henderson, M.P., and Mr. Willis, were appointed members, and Mr. O. B. Clarke became Secretary; in June Sir Stewart Stockman, M.R.C.V.S., was appointed a member; and in November Mr. Albert Smith, M.P., was appointed in place of Mr. Arthur Henderson, who resigned.

An Interim Report was presented in April, 1912,[2] and a full sum-

[1] See The British Journal of Tuberculosis, vol. vi., No. 2, p. 131, April, 1912.

[2] Interim Report of the Departmental Committee on Tuberculosis (Cd. 6,164). To be purchased directly, or through any bookseller, from Wyman and Sons, Ltd., Fetter Lane, E.C., and 32, Abingdon Street, London, S.W.; or Oliver and Boyd, Tweeddale Court, Edinburgh; or E. Ponsonby, Ltd., 116, Grafton Street, Dublin. 1912. Price 3d.

mary has appeared in THE BRITISH JOURNAL OF TUBERCULOSIS together with a collection of representative opinions on the same.[1]

In this Interim Report the Committee recommended the establishment of machinery for the treatment of tuberculosis consisting of two units—namely: (1) The dispensary unit, consisting of dispensaries with their staff of specialists, etc.; and (2) the institutional unit, consisting of sanatoria, hospitals, etc. The nature of the treatment to be provided by these two units was discussed at some length, and a classification of patients was indicated.

The Final Report, together with a volume of "Memoranda submitted to the Departmental Committee on Tuberculosis," was issued on March 10, 1913,[2] and the following is a presentation of what we conceive to be its more important conclusions and recommendations.

The principal matters dealt with by the Committee in their Final Report refer to measures which should, in their opinion, be taken for the prevention of tuberculosis in general, and special reference is made to questions relating to bovine tuberculosis, the safeguarding of the milk-supply, the occurrence of tuberculosis in children, and the formulation of a scheme for dealing with the annual sum of money available in the hands of the Insurance Commissioners under Section 16 (2) of the National Insurance Act for purposes of research.

Recognizing that no campaign against tuberculosis can be instituted and carried out with reasonable prospects of success if provision is made for a section only of the population, the Committee express gratification at the announcement that the Government have decided to provide annually a sum of money which will represent approximately half the estimated cost of treating persons who are not insured under the National Insurance Act, as well as the dependents of insured persons. Since the publication of the Interim Report of the Committee, the Chancellor of the Exchequer has announced that 6d. per insured person, out of the sum of 1s. 3d. provided by Section 16 of the National Insurance Act for sanatorium benefit, is to be applied to the remuneration of general practitioners who will be concerned with the domiciliary treatment and supervision of insured persons suffering from tubercu-

[1] See Report and Symposium on Tuberculosis and the National Insurance Act, in THE BRITISH JOURNAL OF TUBERCULOSIS, vol. vi., No. 3, p. 133, July, 1912. A symposium on "National Insurance and Tuberculosis," with "A Collection of Representative Opinions," appeared in THE BRITISH JOURNAL OF TUBERCULOSIS in vol. v., No. 3, p. 161, July, 1911.

[2] Departmental Committee on Tuberculosis: Final Report of the Departmental Committee on Tuberculosis: Vol. i. Report: (Cd. 6,641). Price 2½d. Vol. ii.: Appendix—Memoranda submitted to the Departmental Committee on Tuberculosis (Cd. 6,654). Price 1s. 7½d. To be purchased either directly or through any bookseller, from Wyman and Sons, Ltd., Fetter Lane, E.C., and 32, Abingdon Street, S.W., and 54, St. Mary Street, Cardiff; or H.M. Stationery Office (Scottish Branch), 23, Forth Street, Edinburgh; or E. Ponsonby, Ltd., 116, Grafton Street, Dublin.

losis. The Committee welcome the co-operation of the general practitioner, but do not hesitate to declare that "they regard with some anxiety the smallness of the funds available under the National Insurance Act for the maintenance of dispensaries and institutions."

Particular stress is laid on the desirability of insuring measures which shall be of a definitely preventive character. Methods of prevention are divided into two classes: (1) Those whose object is to prevent the entrance of tubercle bacilli into the human system; and (2) those whose object is to prevent persons into whose system tubercle bacilli have entered from developing the disease.

The Committee deem it of great importance that every effort should be made to secure that the food of the country shall be free from tubercle bacilli. Much emphasis is laid on the dangers of the conveyance of bovine tuberculosis to man through the medium of an infected milk-supply. On this still much-discussed subject the Committee are very emphatic. They are of opinion that the bacillus of bovine tuberculosis is a cause of tuberculosis in adults, and to a greater extent in children, and that the best way to attain complete security from the danger of bovine infection is entirely to eradicate tuberculosis from the cattle of this country. They think that this is not impossible of achievement, but is likely to be attained only by a slow process, and that it must depend upon co-ordinated and continuous effort. No single or purely local effort, they claim, will suffice to eliminate bovine tuberculosis. The Committee approve the proposed legislation dealing with the question of milk-supply, which they consider should be upon the widest possible basis, and should include the whole country. They are of opinion that County and County Borough Councils should have power to inspect herds, dairies, and farm buildings, to administer all enactments relating thereto, and to require that certain cows should be slaughtered, both in the interest of the public and of the dairy industry.

The compulsory isolation of certain consumptive patients who are in a state of high infectivity is recommended, as well as the systematic and thorough disinfection of premises which, there is reason to believe, harbour tubercle bacilli. Much stress is put on the importance of early diagnosis of tuberculous disease, and the opinion is expressed that the establishment of the dispensary system recommended in the Interim Report will do much to facilitate this and to educate the public in regard to the risk of infection arising from the carelessness of infected persons and of those living in contact with tuberculous patients. It is also suggested that much may be done in preventing tuberculosis by improvement of housing conditions, by the establishment of garden cities, and through the promotion of town-planning schemes.

We are particularly glad to find that special attention has been

directed to a consideration of the needs of the tuberculous child. It is admitted that tuberculosis, in one form or another, is widely prevalent among children. The Committee consider the evidence convincing, that children are infected through tuberculous milk as well as from other sources. They recognize the importance of early diagnosis of tuberculosis in children, before pronounced symptoms have developed, and are anxious that measures for securing the early detection of the disease in children should be adopted. They also are of opinion that additional provision is required for the treatment of children suffering from the disease, including cases of pulmonary tuberculosis, tuberculosis in the bones and joints, and glandular and other forms of tuberculosis. It is pointed out that, in addition to the provision of treatment at sanatoria and hospitals for tuberculous children mentioned in the Interim Report, there is urgent need for a wide application of the principle of open-air treatment and education by means of open-air schools (day and residential), open-air classes, etc. Such institutions, it is contended, should deal not only with tuberculous children, but also with the large number of children who are suffering from ailments which, if neglected, would be likely to increase their susceptibility to tuberculosis. It is also desirable that these institutions should be utilized, as far as possible, to teach the advisability of the adoption of a practically open-air life in the homes of the children. It is also urged that local education authorities or school boards have the opportunity of playing an important and indeed an essential, part in the detection, prevention, and treatment, of tuberculosis. In order to link up the local education authorities and school boards with the general scheme for the prevention and treatment of tuberculosis, it is desirable that the school medical officer should be closely in touch with the family medical attendant and with the tuberculosis dispensary, and that the dispensary or tuberculosis officer should provide, as far as possible, the same services for children as for adults. There should not only be a correlation between the dispensary and the various institutions for children, but the institutions for children, such as the school clinic, the open-air school, and the sanatorium, should be correlated one with another in order to insure the easy transference of children from one institution to another. All appropriate cases should be referred to the tuberculosis dispensary as a clearing-house for the confirmation of diagnosis in doubtful cases, for the purpose of clinical record, and for treatment where required. Children of school age fit, or likely to become fit, to receive education, even in modified form, should be referred to the school medical officer for education in open-air schools, sanatorium schools, or other special schools, or in ordinary public elementary schools under special care and supervision. The arrangements should be such as to secure the co-operation of the general

practitioner. The wise suggestion is made that separate institutions, or at least separate pavilions or departments for children, should be provided. Cases of non-pulmonary tuberculosis should generally be treated in separate institutions or departments or under special administration, because of the different equipment and treatment required for these cases. The Committee consider that a sum of about £200,000 is required for the provision of institutions for children, and recommend that, if the £1,500,000 made available by the Finance Act, 1911, is insufficient to provide this sum, additional funds should be provided by Parliament. With such a suggestion we trust all will agree, for we are convinced that there is no more hopeful way by which to attain the extermination of tuberculosis than by concentrating care and control on the tuberculous and tuberculously-disposed child.

The Committee observe that the Local Government Board, acting under the powers conferred upon them by the Public Health Act, 1875, the Public Health (London) Act, 1891, and the Public Health Act, 1896, have issued regulations making it compulsory to notify cases of tuberculosis of all kinds, and repealing the regulations of 1911 under which only pulmonary tuberculosis was notifiable. It is further intimated that the issue of similar regulations is now under consideration by the Local Government Board for Scotland.

It is interesting to note that, with regard to non-pulmonary tuberculosis, which, although found to some extent in adults, occurs mainly in children, the Committee admit that they have not been able to form any reliable estimate as to the extent to which new institutional provision, if any, may be required; but they suggest that for such the capital cost per bed might be put at about £150 on an average, and the maintenance charge per bed per week at from 25s. to 30s.

We welcome the suggestions made for improving medical education in regard to the problem of tuberculosis, and we warmly endorse the scheme promulgated for the establishment and maintenance of research, using that word in its widest significance.

With regard to medical education, the Committee are of opinion that additional facilities should be afforded to medical students and practitioners to acquire familiarity with the methods of diagnosis of tuberculosis, more especially in its earlier manifestations, and with the methods of treatment. They make the following recommendations: (1) Medical students and practitioners should be afforded facilities to attend at tuberculosis dispensaries, sanatoria, and other similar institutions. (2) It is advisable that tuberculosis dispensaries should, where possible, be directly associated with schools of medicine. (3) Every tuberculosis officer appointed after January, 1915, should be required to give satisfactory evidence that he has, subsequently to qualification, devoted at least six months to special training in tuberculosis, and at least

eighteen months to general clinical work, of which six months should have been spent as resident in a hospital for general diseases or other hospital not confined to the treatment of tuberculosis. (4) Tuberculosis officers should be afforded special facilities by the authorities by whom they are appointed, enabling them to spend not less than one month every three years in attending post-graduate instruction. The Committee note that tuberculosis dispensaries have in some cases, with the approval and support of local and other authorities, been recently established in connection with out-patient departments of general hospitals associated with medical schools. This step, they hold, should prove of the greatest value both to the public and to the medical profession.

The suggestions touching *research* are so valuable and important that we do not hesitate to quote *in extenso:* "In the Interim Report the Committee laid down the principle that any scheme which should form the basis of an attempt to deal with the problem of tuberculosis should provide (*inter alia*) that concurrently with measures for prevention, detection, and treatment, provision should be made for increasing the existing knowledge of the disease and of the methods for its prevention, detection, and treatment, by way of research. Existing knowledge of tuberculosis, though sufficiently advanced to justify the expenditure of large sums of money in order to provide treatment and to prevent the spread of the disease, is far from complete, and further discoveries of an important character may be anticipated. The Committee consider, therefore, that further research work should be undertaken on subjects affecting the prevention of tuberculosis, its diagnosis and efficient treatment. This was realized by the Committee when they laid stress in the Interim Report on the importance of research. The Committee have been at pains to obtain the view of experts on this question, and they desire to express their indebtedness to those who have done so much to assist them in coming to their conclusions. By Section 16 (2) of the National Insurance Act the sum of one penny per insured person, payable out of moneys provided by Parliament, may be retained by the Insurance Commissioners, in whole or in part, to be applied in accordance with regulations made by them for the purpose of research. According to the latest available returns, this sum should amount at present to about £57,000 per annum. It will probably show a small increase in future years in proportion to the natural increase in the number of insured persons. This provision marks a most important development in the attitude of the State towards scientific research into the causes, treatment, and prevention, of disease. Hitherto, apart from a small annual sum expended by the Local Government Board and occasional grants for particular objects, the State has, in the main, left research to voluntary agencies. The

Committee welcome the fact that by the National Insurance Act a considerable sum of money is now permanently available for the purpose of research. At the same time the Committee wish to express their high appreciation of the valuable work which has been rendered possible by voluntary effort in the past, and their opinion that research under the National Insurance Act should be organized in such a way as not to discourage either voluntary contributions or voluntary research towards the same ends. The aim should rather be to stimulate and co-operate with voluntary agencies.

"The Committee are of opinion that the whole of the moneys made available by the National Insurance Act could usefully be spent on research in connection with tuberculosis. They understand, however, that the Insurance Commissioners have been advised that the moneys in question may properly be applied to research in connection with any disease which may affect insured persons. The Committee anticipate that for the present, at any rate, the moneys will be applied mainly to research in connection with tuberculosis and its allied problems, but, in view of the possibility of extension of research to other diseases, they consider that any scheme for dealing with these moneys, and any machinery which may be established for that purpose, should, as far as possible, be on lines which will be applicable to and facilitate such an extension. While primarily considering the question in relation to research in connection with tuberculosis, the Committee have kept this object in view in making their proposals for dealing with the money.

"Before proceeding to a detailed consideration of the scheme which they wish to propose, the Committee make certain observations of a general character. They show that the inquiries which should be carried out must necessarily cover a wide field, and should include inquiries (amongst others) of a clinical, pathological, experimental, statistical, and sociological character. A more rapid advance in knowledge and better and more practical results are likely to be obtained if a comprehensive scheme of research is carried out on a definitely and carefully organized plan, and if all inquiries, of whatever nature, are as far as possible correlated and co-ordinated. In order to avoid unnecessary overlapping, the results of all research work, whether apparently barren or fruitful, should be collected by one body and published periodically. Hitherto work which has at the time appeared to lead only to a negative result has seldom been published. It is of importance that a change should be made in this respect, firstly, because its publication may prevent other workers from spending unnecessary time and money on precisely the same work, and, secondly, because it is impossible to say whether work which appears to be barren at the moment may not afterwards, in light of increased know-

ledge, prove to be of considerable value. It is also desirable that arrangements should be made whereby workers in this country should be kept in touch with the results of research work in other countries. It is held that every sanatorium, dispensary, and other institution for the treatment of tuberculosis and other diseases, should have access to laboratory facilities for carrying out routine work and for the collection of data, and it is urged that many of these institutions should have complete laboratories of their own. It is pointed out, however, that problems will arise in these institutions which the medical practitioners connected with them may not have the means or time to investigate, and which they should be able to refer to a central body. The boundaries between the different parts of the United Kingdom which it may be necessary or desirable to observe for political or administrative reasons are not necessarily applicable to a scheme for scientific investigation. The work of research should be carried on in places having the best facilities for the particular investigation contemplated, without being limited by consideration of geographical situation, provided that every part of the United Kingdom has the advantage of close association with the work of scientific investigators. It is claimed that central organization and direction mean economy of time and money. These and other considerations of a similar nature have led the Committee to make the following statement and proposals: 'A Minister or a Government Department could not make the best possible use of the money available without having the advantage of the advice of a number of different persons, and obtaining the assistance of experts in the carrying out of the work. The Committee recommend the establishment of an Advisory Council and an Executive Committee. The Advisory Council, it is suggested, should include representatives from different parts of the United Kingdom, of the various Government Departments concerned, of medical, scientific, and teaching bodies interested in the question of research, together with scientific persons of distinction, and men of business capacity and proved ability with, in most cases, experience of public work. The representatives of Government Departments should be in a minority, and should be members *ex officio*. It will probably be necessary for the Advisory Council to consist of not fewer than twenty-five members, and preferably not more than thirty members. The Executive Council should consist of not fewer than five nor more than ten members. The majority, but not all of these members, should be experts. The members of both these bodies should be appointed by the Government. It is advisable that the Advisory Council should be afforded the opportunity of making representations to the Government as to appointments to the Executive Committee. It is pointed out that it will be important from time to time to change the personnel of these bodies, while preserving a certain

measure of continuity. The Committee recommend, therefore, that the members other than those representing Government Departments should not be appointed for more than five years, but should be eligible for reappointment. A system of retiring by rotation should be adopted, and after the first few years retiring members should not be eligible for reappointment, save in exceptional circumstances, until an interval of twelve months has elapsed. The members of the Executive Committee should be remunerated for their services, and the members of both bodies should receive the usual travelling expenses and subsistence allowances. As it is obvious that the Executive Committee will need a permanent whole-time Secretary in order to assist them in carrying out their duties, and in view of the character and importance of these duties, it is suggested that such an officer should be an expert of high standing in research, possess administrative capacity, and be paid a salary of £1,200 to £1,500 per annum. If practicable, he should also act as Secretary to the Advisory Council.'"

It is further intimated that "the duties of the Advisory Council should be to advise, make suggestions, and submit the Executive Committee's budget to the Government, and to advise, criticize, and make suggestions to the Executive Committee. The duties of the Executive Committee should be to frame a budget which should be discussed and considered with the Advisory Council before being submitted by the Council to the Government; to determine, after consultation with the Advisory Council, the scheme of research work; to make periodic reports to be transmitted by the Advisory Council to the Government; and generally to organize and supervise the research work wherever carried on. It is evident that when first organizing the scheme both bodies will have to meet frequently, but that when the scheme is in operation there will be less demand on their time. It is impossible to forecast accurately whether research work will produce positive or negative results, the exact length of time required to carry out a particular piece of work, the amount of money required to complete it, or what further work the results obtained may necessitate. Accordingly the Executive Committee will find it difficult to frame any hard and fast estimates of expenditure, or lay down with accuracy what sum of money will need to be spent in a given year. The balances unexpended in a given year should, therefore, be carried forward to the next.

"As to methods of expending money on research, the Committee have received evidence indicating the following (amongst other) ways in which the funds available for research might be expended: On a central bureau, on special institutes, in grants to approved institutions, in grants to individuals, in making special inquiries, and in scholarships and fellowships. These methods of expending the funds are not mutually exclusive.

"The Committee are of opinion that the work of research could advantageously be carried out on the following (amongst other) lines: (*a*) A central bureau should be established, and should be the headquarters of the Advisory Council and Executive Committee. The central bureau should have a statistical and sociological department, in the work of which should be included the co-ordination and correlation of results. With regard to statistical investigations, every effort should be made to utilize, where possible, and co-operate, with the statistical departments of the different Government Departments. Statistics should be so collected and framed as to be comparable with the existing statistics of mortality. There should also be a library and publishing department. The central bureau should be under the immediate control of the Executive Committee. (*b*) Clinical, pathological, bacteriological, chemical, and other scientific researches should be carried out by competent investigators employed by the Executive Committee in institutions approved by them. (*c*) When the Government, on the recommendation of the Executive Committee, and after consulting the Advisory Council, deem such arrangements desirable, researches of the same nature as those referred to in the preceding paragraph should be carried out in an institution or institutions (including laboratories and hospital wards) which should be under the immediate control of the Executive Committee to the extent and for the purpose in question. (*d*) Money should be available in order that special inquiries—*e.g.*, of a statistical and sociological nature—should be carried out by the Executive Committee if necessary, independently of any particular institution. (*e*) The question whether a sum of money, not exceeding £1,000 per annum, should be available as a prize or prizes for the best original research work done should be considered. The money should only be awarded if the discovery is of sufficient importance and utility.

"As to research workers, the Committee are of opinion that some workers of proved and exceptional ability should be enabled to devote their whole time to research work, and should be given a definite and adequate salary and be entitled to a pension. Efforts should also be made to retain for research work young and talented investigators who would otherwise tend to drift into other lines. The Committee are further of the opinion that the value to the community of the scheme of research recommended in their report will not be fully secured unless it is accompanied by a general extension throughout the United Kingdom of clinical laboratories for the better diagnosis and treatment of the disease, provided out of funds other than those available under Section 16 (2) of the National Insurance Act."

The Appendix to the Report, published as a separate volume, contains a memorandum on sanatoria prepared by a subcommittee consisting of Dr. Noel Bardswell, Dr. Arthur Latham, Dr. Marcus

Paterson, Sir R. W. Philip, and Dr. Jane Walker; and other memoranda dealing with the question of tuberculosis generally and with schemes for its prevention, detection, and treatment, together with communications furnished to the Committee by various scientific and other authorities as to the best methods of expending the money available for research.

The completion of the work of this Departmental Committee on Tuberculosis, and the issue of its Report, marks the rise of a new era in the History of the Study of Tuberculosis and the Conduct of the Campaign against this Scourge of Humanity. For long this journal and other isolated agencies have laboured to bring about co-ordination of work, co-operation of workers, and the co-adjustment of voluntary agencies with the machinery of the State. If the recommendations of the Departmental Committee on Tuberculosis are accepted and acted upon, every unit in the nation will be advantaged.

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ORIGINAL ARTICLES.

THE WORK OF A TUBERCULOSIS OFFICER.

By H. HYSLOP THOMSON,

M.D., D.P.H.,

Tuberculosis Officer for the County of Herts; late Medical Superintendent of the Liverpool Sanatorium; Author of "Consumption in General Practice," etc.

The Editor has asked me to contribute a short article on the work of a tuberculosis officer. As the service is still in its infancy I have some diffidence in acceding to his request, but the importance which at present attaches to the whole problem of tuberculosis and the future work of the tuberculosis officer constrains me to put pen to paper. As the schemes for dealing with the ravages of tuberculosis in the various parts of the country become matured the duties of the tuberculosis officer will gradually become more clearly defined. At the present, however, it is not easy to forecast the exact lines along which future development will take place, more especially as the position and duties of the office will vary in different areas. It is permissible, however, to have a clear conception of what such duties should be, and to suggest in what direction future development may possibly take place. The work of the tuberculosis officer may be viewed from three standpoints: Firstly, there is the organizing and administrative part of his work, which brings him into close touch with the Medical Officer of Health; secondly, there is the expert part of his work—namely, the diagnosis and treatment of the disease at the dispensary; and thirdly, there is his relationship to the medical practitioners in the district in which he is stationed.

The relationship of the tuberculosis officer to the Medical Officer of Health should be clearly defined. While it is desirable, in view of his clinical experience, that the tuberculosis officer should have a certain amount of administrative independence and freedom of action, the Medical Officer of Health is responsible for the administrative part of the work, which must, therefore, be carried out in consultation with him and subject to his approval. The administrative experience of the Medical Officer of Health and the clinical experience of the tuberculosis officer should provide an efficient combination for dealing with the

problem of tuberculosis. In one particular, however, a note of warning is necessary. Indications are not wanting that in some districts the treatment of tuberculosis is viewed more as an administrative problem than as one requiring clinical experience. Tuberculosis cannot be successfully treated in the same manner as enteric fever, diphtheria, and other infectious diseases of relatively short duration. To overlook the protean character of the disease, to label it one morbid entity, and to ignore the personal element will tend to stereotype the methods of treatment and be fatal to the best interests of the patient.

The most important part of the work of the tuberculosis officer, therefore, will be the diagnosis and treatment of the disease and the differentiation of type for sanatorium, hospital, dispensary, or domiciliary treatment. The whole success of the treatment of tuberculosis, so far as our present knowledge enables us to view it, rests on this important point—namely, the selection of the most suitable form of treatment for each individual case. It is here that the clinical experience and independence of the tuberculosis officer will prove of value. If his work is to meet with success he must be a clinician first and all things else afterwards. He must early accept the irrefutable fact that the more he sees of tuberculosis in its varied clinical manifestations the less he knows about it.

Part of the work of the tuberculosis officer will be to establish a correct diagnosis in early suspected cases, and in those acute cases of recent onset which in their initial stages so frequently resemble enteric fever. At the dispensary he will be called upon to select cases for tuberculin treatment, and to decide which form of tuberculin he will use and the method of administration which he will adopt. In this he must not be hidebound by the persistent advocacy of any particular school, but must rely upon his previous experience and his own judgment. He would be wise in treatment with tuberculin to aim at evoking a focal immunizing response *pari passu* with the gradual production of tolerance. The interest of his patient will be best considered if he aims at immunizing him against both the endotoxin and exotoxin of the tubercle bacillus. This can be done by a course of P.T.O. or T.O.A., followed by B.E., or by treatment with T.R., or the new tuberculin (W), alone. The views which the tuberculosis officer holds with regard to the treatment of tuberculosis by tuberculin or by other methods will gradually become reflected in the views held by the general practitioners in the district. He therefore holds a position of no little responsibility and trust in relation to the whole problem of tuberculosis.

In the course of time the dispensary will become recognized as a centre for information and assistance in connection with all questions relating to tuberculosis, and the views and expert opinion of the

tuberculosis officer will be frequently consulted. This will bring him into frequent and intimate touch with the general practitioners with whom the tuberculosis officer must work in friendly co-operation.

In many districts there will be a desire on the part of some of the medical practitioners to attend at the dispensary. The presence of the general practitioner during dispensary hours and his co-operation with the tuberculosis officer in the examination and treatment of patients would undoubtedly be to the advantage of both. It will greatly assist in the early detection of the disease, and as the patient will not be removed altogether from the supervision of the general practitioner, his interest in the progress of the case will be retained. Indeed, it would be a mistake for the tuberculosis officer to endeavour to separate dispensary treatment from general medical practice and domiciliary treatment. The whole question of successful dispensary treatment and after-care rests on combined dispensary and home régime and on co-operation between the tuberculosis officer and the family physician.

It will thus be seen that the duties and responsibilities of the tuberculosis officer call for some administrative and organizing experience, sound clinical knowledge of the disease, and considerable tact and discretion. If a broad and comprehensive view be taken of the whole problem of tuberculosis, the future will show that the field of labour of the tuberculosis officer occupies an important position in the public health campaign of the country. The future of the tuberculosis officer will, however, depend on the pioneer work in which he is now engaged. If by his work he will bring about co-ordination of effort and be able to unify the methods of treatment in his district, his ideal of achievement should be realized.

THE PLANNING AND CONSTRUCTION OF SANATORIA.

By A. WILLIAM WEST,

Treasurer of St. George's Hospital; Architect of Benenden Sanatorium.

The passing of the National Insurance Act, with its provisions for "sanatorium benefits" for consumptive cases, has directed attention to some of the problems involved in the planning and construction of hygienic and inexpensive buildings for tuberculous patients.

The first question that a committee asks, when considering ways and means for the establishment of a suitable institution for consumptives, is, What can you build a sanatorium of such-and-such a number of beds for? Much depends upon the answer to this question. In the first place I will refer to one or two of the chief facts which must be considered, and then proceed to give actual figures.

It cannot be too strongly impressed upon those responsible for the establishment and maintenance of sanatoria that economy in first cost of erection is not everything, although of course it is an item of great importance. What really is of vital importance is that a building may be so designed as to be economically worked when erected, for in this way, and this way only, can the cost of maintenance be kept low. To be able to design a sanatorium which shall be economical in working cost requires an intimate knowledge of the administration of such an institution. Every unnecessary square foot of flooring costs so much per annum to scrub and clean, and every additional yard of wall-space so much more for upkeep. Then comes a very important consideration, namely, whether or not the whole of the patients are to be placed under one roof, or whether some are to be housed in separate pavilions of ten or twelve beds each, and with a main administration block.

One of the great arguments in favour of the separate pavilion system, in the days when the money was generally obtained from the charitable public for the erection of sanatoria, was that in many cases it was easier to raise £1,000 as a contribution for the erection of a separate pavilion than to obtain £1,000 towards a portion of a main block of building. Apart, however, from such consideration, there is much to be said in favour of the separate pavilion; the patients themselves feel less like being in an institution, and are inclined to settle down much more comfortably. On the other hand, the pavilion system requires more supervision, and of course only the patients in the less serious stages of illness can be placed in these pavilions, as otherwise

FIG. I.—THE MAIN BLOCK OF THE BENENDEN SANATORIUM.

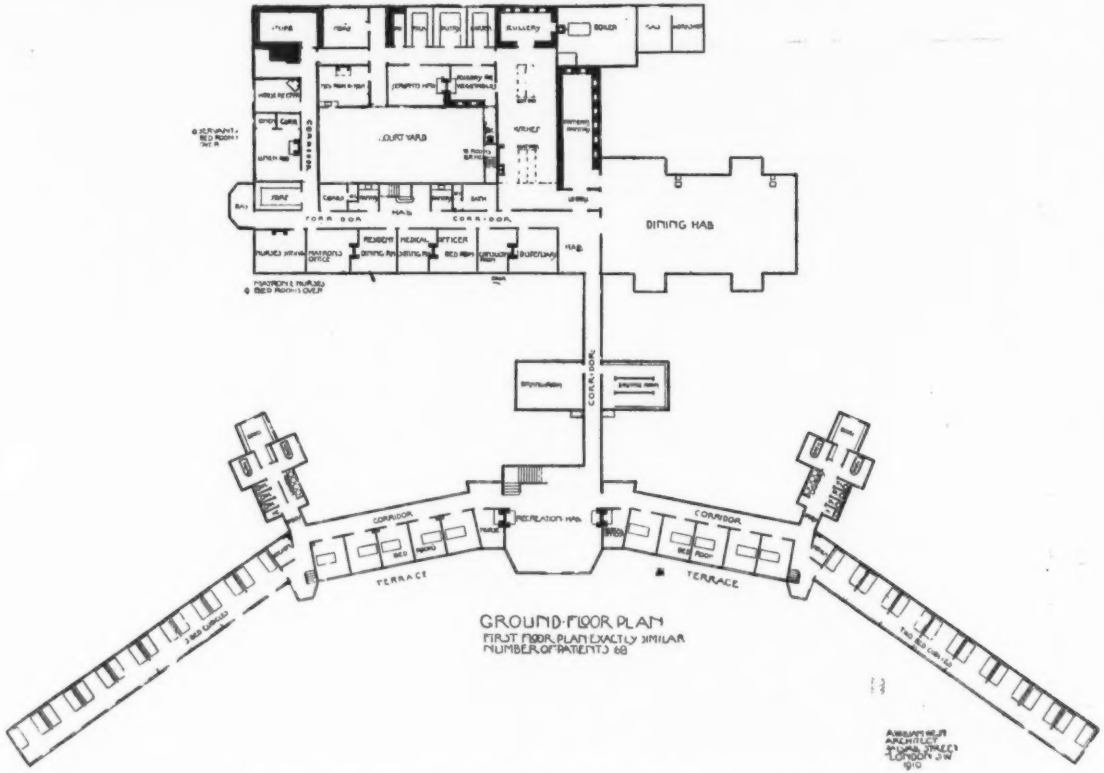


FIG. 2.—PLAN OF THE NATIONAL SANATORIUM, BENENDEN, KENT.

they would be inconveniently far from the central administrative quarters, with the nurses and medical officers.

On the whole, the best arrangement would seem to be a combination of separate rooms, which for want of a better term I may call "cubicles,"

FIG. 3.—GENERAL VIEW OF THE POST-OFFICE PAVILION, BENENDEN SANATORIUM.

and separate pavilions. By this arrangement the more serious cases can be given a room to themselves, and as they improve are moved into the so-called "cubicles," and later into the separate pavilions as they are able to undertake work. There is also an additional advantage

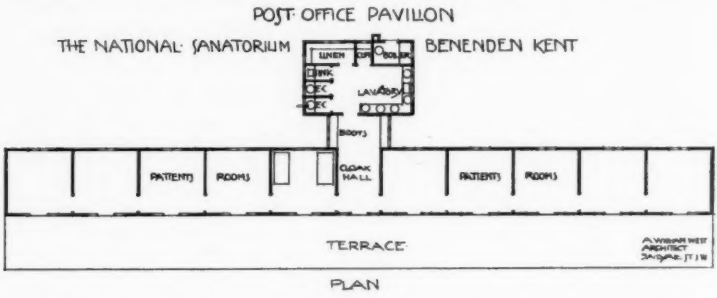


FIG. 4.—PLAN OF THE POST-OFFICE PAVILION OF THE BENENDEN SANATORIUM.

in this arrangement in that it is distinctly encouraging to a patient to feel that he is progressing by his removal from one portion of the sanatorium to another; all such influences play an important part in the cure. The plan of the Benenden Sanatorium, the first institution

built for the National Association for the Erection of Sanatoria for Workers, shows this arrangement (Fig. 2).

The site of a good sanatorium must to a large extent decide the exact form of buildings. In the construction of the sanatorium at Benenden we were anxious at first to confine the building to a certain field, and the levels were not convenient for a long, spread-out building; consequently the administration block was placed entirely at the back, but it would have been pleasanter and no less costly on a suitable site to have put the administration buildings between the two wings of the main block, and thus have given a direct view to the south.

It will be seen, on reference to the plan, that there are separate

FIG. 5.—THE RIGHT HON. JOHN BURNS, PRESIDENT OF THE LOCAL GOVERNMENT BOARD, WATCHING PATIENTS AT WORK AT THE BENENDEN SANATORIUM.

rooms for twenty of the patients, or 10 per cent. of the total number of patients provided for; a further sixty-four are provided for in what I have termed "cubicles," although they are not really cubicles, as the divisions extend to the ceiling, and there are no doors between the rooms, thus forming, as it were, a corridor. This plan has been found to work admirably, and to be of no practical inconvenience, as all the ground-floor rooms have access to a terrace in front which is in reality used as a corridor, except in very wet weather. The pavilions are also arranged on the same principle.

The cost of this sanatorium when complete (all the pavilions have not yet been erected) will work out at £145 per bed, including cost of land and furniture and equipment, or £109 per bed for buildings, water-supply, and drainage system, including septic tanks. In this price is included expenditure on teak floors and doors, a somewhat

expensive item in first cost, but which it is believed will repay the initial outlay in a very short period. The arrangement of one of the separate pavilions is shown in Figs. 2 and 3.

I can give another instance of a sanatorium, designed for eighty beds, which is being erected at a cost of £116 per bed. Local conditions will of course vary the price somewhat in special localities, but I think these figures should be considered as the basis upon which any new sanatoria should be built. The figures now available show an

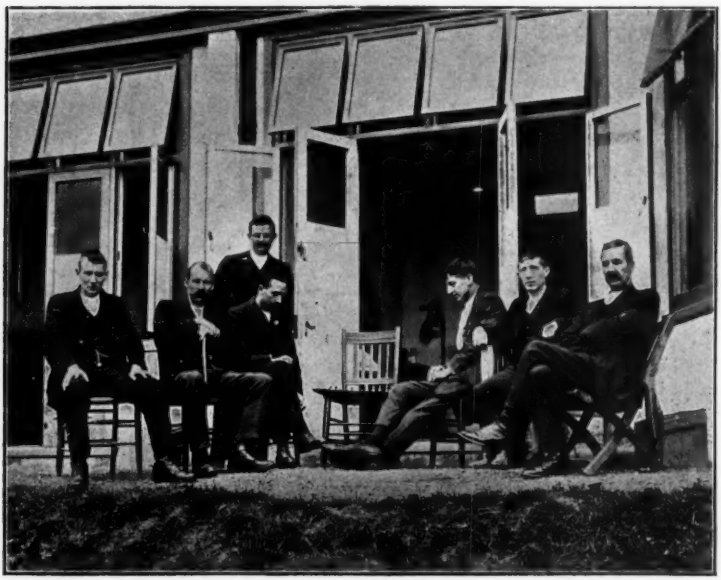


FIG. 6.—PATIENTS ON THE TERRACE AT THE BENENDEN SANATORIUM.

enormous reduction upon the cost considered necessary only a few years back, when many sanatoria were erected at a cost varying from £300 to £600, or even £1,000 per bed.

It is most desirable that sanatoria should be built for about 200 or 250 patients each, not only as the cost per bed is relatively smaller the larger the sanatorium, but also from the fact that the number of officers required for their management is less in proportion than if sanatoria for 100 beds are erected all over the country; and it should not be difficult for adjoining county areas to be able to make mutual arrangements for wise combination to secure this end.

Finally, it must not be supposed that the best results are to be

obtained, both from economic and structural points of view, by calling in any local architect and trusting to the medical adviser to be able to tell him what is required. The subject of sanatoria planning and construction has become a matter of special study, and it is desirable that the assistance of experts should be obtained at least in a consultative capacity.

EXHIBITS IN TUBERCULOSIS DISPENSARIES.

By GARDNER T. SWARTS, Junior

Those in charge of the average tuberculosis dispensary consider that in providing suitable waiting and consultation rooms supplied with the proper apparatus they have furnished the best equipment they can for the nurses and the physicians, who very often are giving their services for the benefit of the clinic. How often is the waiting-room left utterly bare of any adornment, either artistic or educational! Those attending the dispensary are obliged to sit in silence waiting their turn in what is usually a dark and dreary room, with no amusement further than the howl of the baby on the next settee. Except that they are getting a rest, they are here gaining nothing in their fight against disease. They are not even obtaining fresh air.

The waiting-room of a tuberculosis clinic or dispensary can be made a potent factor in the education of those who come inside its doors. Here the patients have time for reflection and thought, the influence of which they take anyway. Here, indeed, is opportunity wasted if they are not provided with something interesting and instructive with which to occupy their minds. The subject uppermost in the patient's thoughts is tuberculosis—how he himself can be cured, and how he can avoid giving it to those at home. One patient wonders in regard to the instructions given by the doctor at his last visit, and questions arise in his mind about important points which he has either forgot or has felt backward about asking. Another patient has heard the doctor speak of the sanatorium as a possibility, and wonders what it looks like, what sort of a place it is, and how she would be treated if she went there. Some patients have heard their neighbours recommend a famous consumption cure which they secretly use, although the doctor has warned them against anything but what he advises. They believe that the doctor must have some motive for not recommending this peerless remedy which Mrs. Smith states was of such great benefit to her aunt in her last illness. They have heard the doctor mention sleeping-out porches, and the nurse has spoken of a

Klondike bed. Fearful of appearing stupid, they eagerly agreed that they understood the directions at the time they were given. They really have not comprehended them in the least, and when they return home from the dispensary they are quite content to improvise some imperfect substitute.

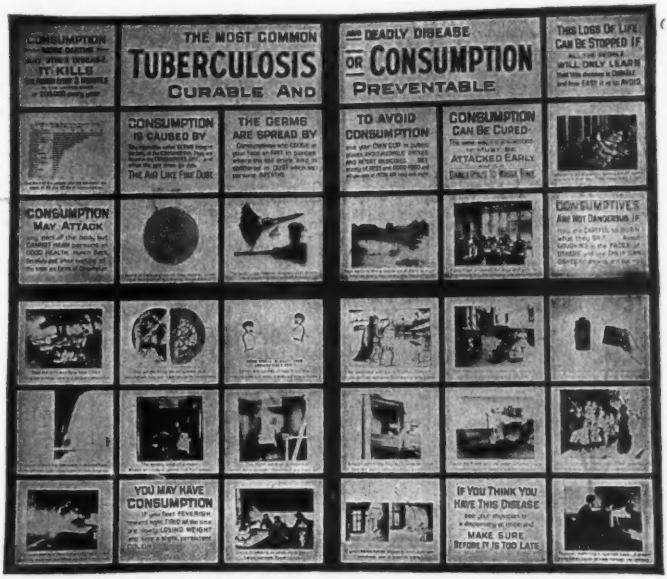
How much better would it be if these tuberculous patients could

IT IS YOUR DUTY TO LEARN ABOUT THIS DISEASE
TUBERCULOSIS
(CONSUMPTION)
YOUR WORST ENEMY
READ AND REMEMBER THESE FEW FACTS
CONSUMPTION
KILLS MORE DEATHS THAN ANY OTHER DISEASE
IT KILLS
ONE PERSON EVERY 3 MINUTES
THIS LOSS OF LIFE CAN BE STOPPED IF
THE GERMS ARE SPREAD BY
YOU MAY HAVE CONSUMPTION
IF YOU FEEL FEVERISH
LOSING WEIGHT
COUGH
SUITABLE OUTFIT FOR OUTDOOR RESTING IN COLD WEATHER
CONSUMPTION IS CAUSED BY
THE AIR LIKE FINE DUST
CONSUMPTION MAY ATTACK
TO AVOID CONSUMPTION
IF YOU THINK YOU HAVE THIS DISEASE
MAKE SURE BEFORE IT IS TOO LATE
CONSUMPTIVES ARE NOT DANGEROUS IF
A SECOND STORY PORCH
FOR OUTDOOR SLEEPING
15.

AN EDUCATIONAL TUBERCULOSIS CABINET.

receive real instruction! If they could see before them on the wall of the dispensary a picture indicating just what a sanatorium is like and how the resident patients look, a clear statement indicating why patent medicines are dangerous, illustrations of what a sleeping-porch is like, and how a Klondike bed is made; if they could see around them short and striking statements such as they could remember and repeat at

home to Mrs. Jones or other friends, how much better would the dispensary have served its purpose! If the doctor or the nurse before leaving them could show them pictures of home-made hygienic devices, or a striking cartoon illustrating the very points that have been explained, how much more clearly would the lesson be driven home! The distribution of a little pamphlet with its indistinct and minute diagrams, with its page after page of printed matter, cannot describe so clearly nor so well what is wanted as the big enlarged photograph with a large and carefully-worded description beneath. Why not cover



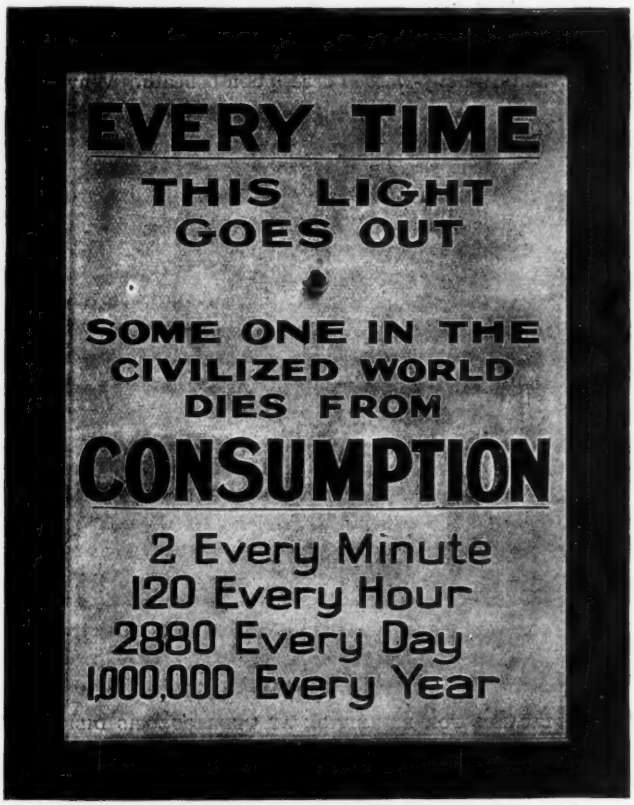
PICTORIAL PLACARDS FOR EXHIBITION AT TUBERCULOSIS DISPENSARIES.

the dark and dreary walls of the dispensary with material that fills this need?

For very small rooms some of the exhibits provided by the Educational Exhibition Company will be found of real service.[1] A tuberculosis exhibit covers the entire subject in a space about 6 feet high and 7 feet long. The pictures are all bright and clear; the reading matter is interesting and concise. For large rooms a frieze made up of the

[1] Full particulars can be obtained on application to the Directors, Educational Exhibition Company, 70, Waterman Street, Providence, R.I., U.S.A., to whom we are indebted for the loan of the blocks illustrating Mr. Swarts' article.—EDITOR, B.J.T.

New York banners, which are 8½ feet long by 2 feet high, and describe the methods of prevention and cure in striking pen-and-ink drawings, make a valuable addition to the equipment of a dispensary or tuberculosis exhibition. For a room having an alcove or a large corner space, the type B exhibit on tuberculosis, or a set of 22 by 28 inch framed



A FLASH-LIGHT SIGN FOR USE AT TUBERCULOSIS DISPENSARIES AND EXHIBITIONS.

cards containing 14 by 17 inch enlargements, or some of the striking mottoes on the subject, are a great help.

Models are always valuable if they explain things in three dimensions, thus making them seem more real. A small bed which the nurse can make up in the form of a Klondike bed for those who are interested is a valuable piece of apparatus which can be used over and over again.

A model of a rough but suitable sleeping-porch which can be built for a small amount of money, or a model showing a doll dressed in the proper clothing for outdoor resting in cold weather, furnish object lessons of practical value.

Some of the double red crosses on flags or shields make bright but suitable decorations for the room. In fact, the entire tone of a tuberculosis dispensary can be altered by suitable educational decoration. Attractive models will help to encourage the patient. He sees that

A HAND LETTERED MOTTO-CARD FOR POPULAR INSTRUCTION.

others are being cured, and that his case is not hopeless, as he might believe were he compelled simply to study the faces and appearance of those in the same waiting-room with him.

The dispensary waiting-room, as an arm of the movement for education against tuberculosis, has not as yet been utilized to its fullest extent, and those in charge of these institutions, when their attention is called to the value of such efforts as are above described and indicated in the accompanying illustrations, will not hesitate long in supplying these efficient but inexpensive instruments for anti-tuberculosis instruction.

THE ADMINISTRATION OF A TUBERCULOSIS DISPENSARY.

By J. BELL FERGUSON,
M.B., D.P.H.,
Chief Tuberculosis Officer and Deputy Medical Officer of Health, City of York.

In view of the rapid increase in the number of dispensaries for combating tuberculosis, it may be of interest, and perhaps of use, to describe some of the details of administration, particularly in connection with what may be termed the "office side" of the work.

It will be found in practice that the card-index system, in conjunction with a vertical filing cabinet, will be the most economical and efficient plan to adopt in carrying out the work. It is convenient to have the vertical file-drawers made to hold quarto size papers. Various case-sheets and forms are required. These may be as follows:

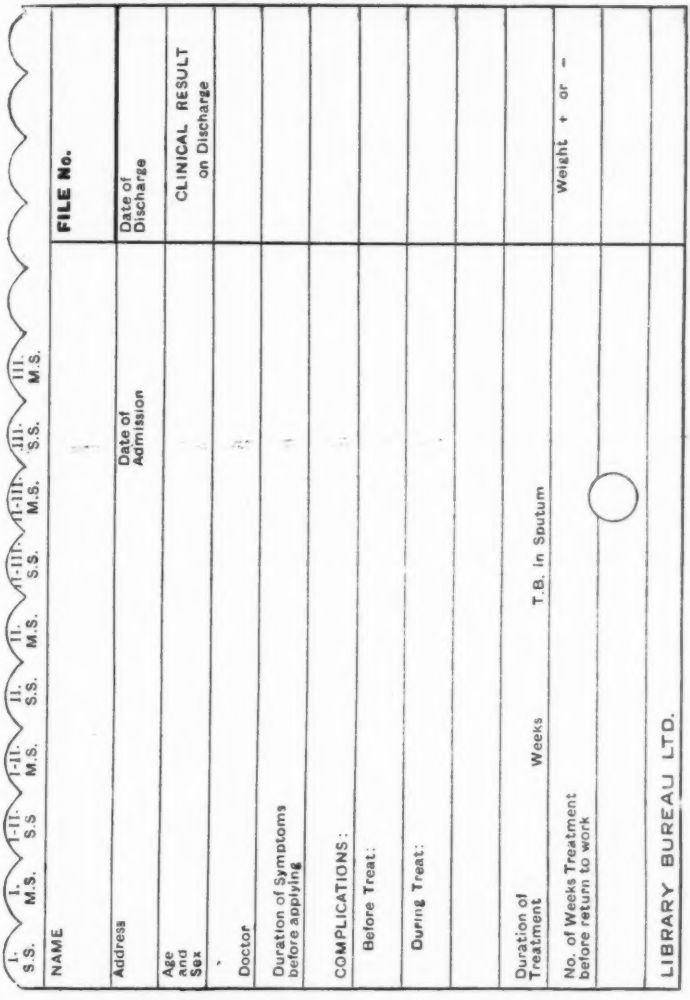
Form A.—Giving full details of history of illness and previous treatment, condition on admission, symptoms of present illness, previous health, family history, possible source of infection, and, lastly, summary of main clinical details (whether disease is active or quiescent, pulmonary or non-pulmonary, complicated or otherwise, and the classification of the stage of the disease).

Form B.—Providing a record of physical condition on admission. The obverse side contains details as to height, weight, sputum, urine, carious teeth, oral sepsis, etc., and has also a clear front and back diagram of the chest. There is also a diagram of the larynx. The reverse side of this form provides ample room for two more back and front diagrams of the chest, on which physical signs found on re-examinations may be entered.

Form C consists of a record of home conditions, and deals exhaustively with the patient's everyday life, family, environment, nutrition, personal habits, etc. Under the heading "Contacts," ample room must be left for the names, ages, and particulars of the health of those living in intimate relation with the sick person. The reverse side contains a record of the sanitary state of the house itself, with space for details found on revisits. This form may be filled in by the nurse or health visitor. To avoid duplicating work it may be taken to the Medical Officer of Health, and, having extracted any information which he requires, it is then forwarded to the dispensary to be filed, along with the personal and clinical details of the patient.

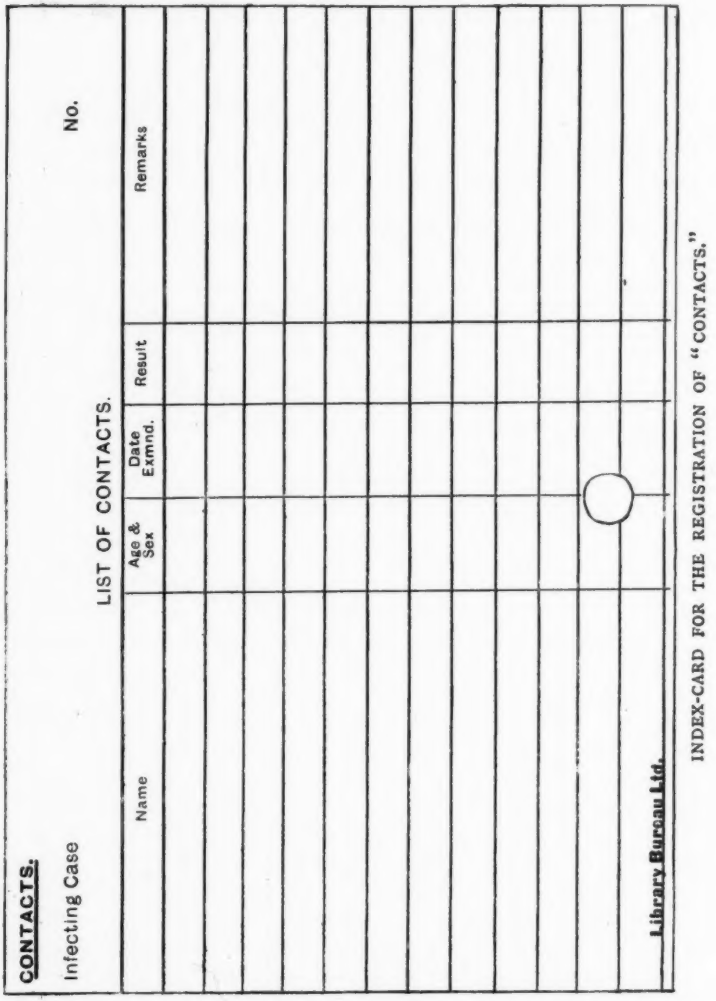
Form D is a record of special treatment, such as tuberculin injections, etc.

Form E is a progress sheet, on which is entered a summary of the patient's progress, details of complications, or intercurrent disease while he is under the observation of the dispensary.



Patients should be provided with cards on which to enter their temperatures. Later, when they understand thoroughly the use of the thermometer, small charts to last four weeks may be substituted. These can be kept clean and tidy in cardboard folders.

When a patient applies at the dispensary, his history is taken on Form A by the nurse, and details of the physical condition are filled in on Form B by the physician. If the case can be classified at once,



these facts are entered at the foot of Form A. The use of the thermometer is explained to the patient, and he is provided with a card, sputum flask, and pamphlets of instruction. When the case is notified

in due course, details of the home conditions arrive on Form C, and these three forms are filed in a stiff paper folder in the vertical file. The folders are supplied already numbered, and an index-card is taken, the available details entered on it, and a number corresponding to the folder in the file is entered in the right-hand corner of the card.

The card is now filed alphabetically in its box, which rests on the top of the vertical filing-cabinet. Thus, any information being required about that patient, the card is sought out from the index, its number noted, and the folder so numbered is picked out from the vertical file-drawer underneath. It will contain all available information about that patient in one compact bundle.

Further, the cards of the index may be adapted for the purpose of summarizing the facts about each patient for statistical purposes, and may be coloured to differentiate the sexes—*e.g.*, white for adult males, blue for females, buff for boys under fourteen, and salmon for girls under fourteen. The accompanying figure will explain the idea. It will be seen that the card is partly filled in when the patient presents himself, but cannot be completed till he is discharged. The upper edge of the card is cut out into little "tags," and each is numbered according to Turban's classification. I have found this classification unsuitable by itself, as it merely states the anatomical extent of the disease, and gives no indication of the amount of constitutional disturbance. I have therefore attempted to amplify it by having the letters "S.S." and "M.S." printed under each of Turban's stages, the former implying "systemic disturbance slight," and the latter "systemic disturbance marked." When the case is classified, all printed tags, except the one required, are cut off with scissors. If a case has had tuberculin, one of the blank tags may be coloured with red ink. If a non-pulmonary case offers itself, then the right-hand corner of the card may be cut off and a white metal signal attached. If death supervenes, a black signal is used.

For the registration of "contacts," a special red card is used, with space for the name of the infecting case in the left top corner. Underneath is room for the list of contacts, with names, ages, date of examination, and decision. These cards are filled in by the physician, usually in the home of the infecting case, while he is holding the "march past." A separate factory and workshop index should be kept, which in time will give valuable information regarding the attack-rate among the employés of any particular firm. Lastly, a street index is most useful. The name of a street is on each card, and below are the numbers of each infected house, with the name of the patient opposite the number. This index is exceedingly useful in revealing "tuberculous nests," for the preparation of a "spot map," and also for facilitating revisits to a number of patients in any one street.

In connection with the card-index system it is wise to have a daily summary of cases applying and how dealt with. These are kept until the end of the week, and made into a weekly return. The following may serve as an example :

DAILY RETURN.

Return for ____ day ____ 191___	Adults (over 14).		Children under 14.	TOTAL.
	Males.	Females.		
No. of New Cases Applying				
Reattendances				
No. of Insured Persons commencing treatment at Dispensary				
No. of Insured Persons commencing treatment at "Dispensary Beds"				
New Cases taken on at Dispensary				
Cases passed for "Dispensary Beds" ...				
Referred to other Institutions				
New Patients Examined (Round No.) ...				
Old Patients Re-examined				
Sanatorium Cases transferred to Dispensary				
Dispensary Cases transferred to the Sanatorium				
Patients who have ceased attending of their own accord				
Patients who have ceased attending on advice of Tuberculosis Officer				
Special Visits to Factories and Workshops..				
Home Visits :				
Tuberculosis Officer { First Visit ... / Revisits ...				
Nurse ... ... { First Visit ... / Revisits ...				
Special Visits in connection with **After-Care**				
Patients Discharged after Tuberculin Treatment :				
Markedly Improved				
Improved				
In Statu Quo				
Worse				
Contacts :				
No. of Infecting Cases				
No. of Contacts Examined				
No. of Contacts found Tuberculous ...				

It will be found most convenient to see new patients on certain days of the week—say, Monday, Wednesday, and Friday afternoons. "Old" patients should be seen by appointment at stated times on the other days,

to avoid as far as possible crowds of tuberculous persons being gathered together at the dispensary. It is somewhat difficult to write about such dry details in a way that can be considered interesting, but it is hoped that these hints may be of use to tuberculosis officers opening a new tuberculosis dispensary.

THE AFTER-CARE OF THE TUBERCULOUS.

By ARTHUR H. PRIESTLEY,

M.B., CH.B., VICT.

In the general chorus of approbation of the Dispensary System for dealing with cases of pulmonary tuberculosis, there seems to be a real danger of ignoring a factor at least as important as the early detection of disease or the suitable selection and prompt drafting of cases to sanatoria—viz., the systematic after-care of returned sanatorium cases. Perhaps the very size of this problem, and the fact that it would at once involve a struggle with vested interests, as well as the knowledge that it is far beyond the scope of voluntary agencies, are sufficient to delay its consideration. But it seems a pity that a more adequate allusion to the importance of this part of the general problem was not made in the Interim Report of the Departmental Committee, though there is a suggestion that it will be dealt with in the forthcoming Final Report.

It is a fact beyond question that at the present time, with all the assistance rendered by voluntary agencies, a very large number of working-class patients do relapse after return from a sanatorium to their former homes and old occupations. Statistics do not seem altogether reliable in this matter; they vary too much according to different writers' views of the efficacy of sanatorium treatment. And no doubt something more may be expected in the future from earlier detection and therefore earlier drafting to sanatoria, and perhaps from a longer sojourn there. But, speaking with all reserve, and without the smallest desire to belittle the benefit of sanatorium treatment, I venture to suggest that until institutional treatment is followed up by well-devised measures to maintain in the home and after return to work the higher standard of resistance obtained even after a comparatively short residence in a sanatorium, we shall be largely wasting our efforts to eradicate tuberculous disease.

The average stay of a working-class patient in a sanatorium is usually from three to four months. While this may be long enough under strictly sanatorium conditions, it is by no means sufficient to

permit of a return to an ill-adapted house and the usually prevailing conditions of working life. Many patients are capable of work, and even hard work, under suitable conditions; and with earlier detection we may expect an increase in their number. A few of them, on return, do find suitable outdoor occupations through the agency of voluntary organizations; some are assisted in finding more suitable habitations. But the majority represent either totally unskilled labour or else that highly specialized labour, the result of economic subdivision, which means total lack of skill outside their own particular niche in the industrial mechanism. These persons are not cured; they are only in a state of arrest of disease processes, and they are compulsorily driven back to the "speeded-up" life of modern industrialism. I maintain that if such tuberculous cases are to go back to this life, they are often allowed to go back far too soon. On the one hand, they are able to work, and the sanatorium is not the place for work other than what is required in treatment; besides which it is not desirable to encourage that habit of mind known as "valetudinarianism." On the other hand, they are not fit to resume their former place in the industrial mechanism of our time. What is required, then, is some place between the two, some place where a wage-earning occupation may be begun and carried on while living under hygienic conditions quite impossible in a city. Here is the rôle of the tuberculosis colony. It is not necessary to indicate what kinds of occupation could be carried on by these "observation cases" in such a colony. But it may be mentioned that there are many trades which both men and women could follow without the loss of all their former manipulative skill. They could not be carried on in strict economic competition with the ordinary market, but they would be considerably more productive than in the case of the labour of sanatorium cases. A proportion of the wages so earned would go to the maintenance of dependents, which would have to be supplemented out of public funds until the time of the patient's return.

I suggest that such tuberculous patients as after three or four months in a sanatorium show signs of arrest of the disease—and I believe there will be an increasing proportion of these in the future—should be drafted to a tuberculosis colony for a considerably longer period, at least a year, and probably two years. There would be no need for a resident medical staff in such a colony, though an administrative staff would be required. Periodical medical inspections should be made, and meanwhile these "observation cases" would record their temperatures and general health, and report any deviation from the normal. It is surprising what an intelligent interest consumptives take in their own cases where a reasonable hope of benefit is held out to them. At the end of the period of colony observation, the majority would be fit to return to urban life and occupation, further supervision

being exercised by the dispensary tuberculosis officer over their domestic and working conditions as far as possible.

I also think that more drastic measures are required in dealing with infected houses. The way in which small cottages, often insanitary enough at any time, are continuously tenanted, either by the same family or by another entering immediately after the death of a protracted and highly infective case and with the merest apology of disinfection, if any, is a scandal, and amounts to criminal neglect on the part of the community. A family should be immediately removed from such a house after the death or removal to a hospital of such a case, and the house should remain unoccupied for at least three months, with repeated disinfection meanwhile, before being allowed to be tenanted. This, of course, would involve compensation to the owner at the public expense. Such measures will, I know, be condemned on the ground of expense; but we must not be afraid of expense if we really desire to deal effectively with pulmonary tuberculosis and stamp out the disease. And if we do not provide for rational after-care, we may as well not build sanatoria and establish dispensaries. After all, a larger initial expense will be well repaid in future years.

HOME TREATMENT VERSUS SANATORIUM: FROM THE CONSUMPTIVE PATIENT'S POINT OF VIEW.

By DONALD L. CAMERON.

It would seem that a party cast on a desert island pool their personalities. Now, although a desert island and a sanatorium have their differences, they are alike in this—that both are places where groups of persons, under the action of something common to them alone, are thrown together and separated from the rest of the world. This influence of a common cause produces on such classes something of the same effect. A public spirit is created, and this is always good for the individual who has something to give to the common stock, to come out of himself and to act upon and be reacted on by those around him. When treated at home the patient has none of this party feeling; he is usually much more alone, and often left almost to himself. Even in sanatoria patients have been known to doubt whether the open-air treatment, with its discomforts, was the best for them, in spite of having the advantage of a tyrant doctor immediately over them, and the example of philosophic patients around them. At home it requires

a very strong conviction to carry on open-air treatment and hygienic management serenely and continuously even when things are going ill. The moral support at such times is often very small, and it is just then that it is needed most.

In a "consumption cure" nearly everything depends on the attitude of the patient, on the spirit in which he goes about the business of getting well, no amount of supervision being adequate unless the patient can be trusted to co-operate loyally and intelligently. The outstanding features of a "cure" are the length of time it takes and the importance of paying heed to little things. The fight is a succession of small engagements, the results of which are hardly noticeable at the time, but collectively the consequences are great. The little important things are few in kind, but they have to be repeated over and over again. In a sanatorium the treatment can be laid down along broad lines, which if kept to do away with the necessity for small and fussy rules. But this broadness of outlook is only effectual in a sanatorium, as the possibilities for going wrong are comparatively few. In home life the probabilities of departure from rectitude are much greater; rules have to be multiplied, and the patient correspondently harassed.

People say sanatoria are depressing places, and so they doubtless are to healthy outsiders. It is natural for those who have not been inmates to think so, but the consumptive patient is naturally a cheerful person; it is in the very nature of his disease to be so. But, unfortunately, this peculiarity does not extend to the patient's relations and friends. It is not the least of a consumptive's trials to see the grief his illness causes his family, and this is one of the most important of the reasons against home treatment. The very anxiousness of parents and relatives and friends generally make them bad advisers; they are too eager for immediate results. Consumption lends itself to deception consciously or unconsciously. There is a natural desire on the part of the patient as well as of his relatives to make as little as possible of the illness or to exaggerate conditions. Any temporary improvement is apt to lead to over-confidence and the production of a relapse. In a sanatorium this is less likely to happen. For example, a patient who has been in bed is allowed up, and in a few days feels much better; but the treatment goes on just as steadily, using the strength gained to get more. At home, having got up and felt better, he thinks he has earned a slight relaxation, and, the opportunities for such being many, he uses up his still limited strength. It is much less vexatious to be in a place where there are no opportunities for excitement, than in one where there are plenty, and to be perpetually forbidden them.

Again, the disagreeableness of doing certain things is much reduced by doing them in company. At home, to sit out in cold weather when others are gathered round a fire is certainly both difficult and un-

pleasant, but with half a dozen other people doing the same it is possible for it to become quite a cheerful occupation. Similarly, a slow walk, although easy enough in fine weather, is a different matter on a cold, rainy day, when a companion will make all the difference, especially one who is doing it for his own good, as then there is no feeling on the part of the patient of being a nuisance. These are small points, no doubt, but when fully realized all tend to the scamping of treatment. At home the difference between the patient's life and the ordinary one is much more keenly felt than when in a sanatorium, even if—and it is a big "if"—the home treatment is carried out thoroughly. Nothing is easier for a patient than, by slight relaxation of the treatment now and then, to appear to be living an ordinary life, and it is this which makes home treatment so dangerous, as the temptation to do so is great. Also, at home there are none of the safeguards against imprudence which are available during a short or severe illness. It is impossible for friends or relations to be always on guard, even though they thoroughly understand the treatment; they have their own lives to live, which are different from that of the patient, and so it is inevitable that there must be compromise somewhere, and effective treatment does not permit of such things. The most extraordinary argument used by those who write in favour of home treatment is the one that it is not good for the family to be relieved of the nursing of a sick member, and that it loosens family responsibility. One suspects that users of this argument believe that some families are glad to get rid of their sick. This may sometimes be the case, but generally it is the other way; it is often a great hardship for a family to let one of its well-loved members go to a sanatorium, and so be separated from them. No one would think of entrusting a surgical operation to the casual care of a family untrained in nursing; yet consumption is as serious a matter as most operations. "But, of course, home treatment will be under the close supervision of a doctor," it is said, and it is suggested that the family will only be carrying out his orders. The treatment of consumption is too serious a matter for the meddling and muddling of ignorant amateurs, however willing and kind.

CRITICAL REVIEW.

TUBERCULOUS INFECTION IN INFANCY AND CHILDHOOD.

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RECENT investigations into the evidence of tuberculous infection in early life have been productive of far-reaching results, and have gone far to show that the incidence of infection is very much greater than was at one time suspected, and that, in addition, such infection has an important bearing upon tuberculous infection in the adult.

Evidence of Infection in Early Life.

The chief evidence of this widespread infection is furnished by statistics from many sources regarding the Von Pirquet and other tuberculin reactions. Calmette,[1] summing up various figures, states that up to the age of 1 year 9 per cent. of all children examined gave positive results; up to the age of 2 years, 22 per cent.; from 2 to 5 years, 53 per cent.; and from 5 to 15 years, 80 per cent. These figures indicate percentages arrived at from the examination both of children obviously tuberculous and of those in whom the disease was not suspected. The figures recently obtained in Edinburgh by McNeil[2] in the examination of 371 in-patient children, who were not selected in any way, give positive results as follows: Under 1 year, 14·1 per cent.; from 1 to 2 years, 29·9 per cent.; from 3 to 4 years, 46·6 per cent.; and from 5 to 15 years, 45·2 per cent.

But where apparently non-tuberculous children are concerned, latent tuberculosis has been demonstrated by Hamburger[3] in his series obtained in Vienna; his positive results read: Up to 1 year, 0·0 per cent.; up to 2 years, 9 per cent.; from 3 to 4 years, 27 per cent.; from 5 to 6 years, 51 per cent.; from 7 to 10 years, 71 per cent.; and from

[1] Calmette: Rep. Internat. Tub. Cong., *Brit. Med. Jour.* April 20, 1912.
[2] McNeil: *Brit. Med. Jour.*, p. 677. September 21, 1912.
[3] Hamburger: *Brit. Med. Jour.*, vol. ii., p. 76. 1910.

11 to 14 years, 94 per cent.; or, taking the average for purposes of comparison, from 5 to 15 years, 72 per cent.

Post-mortem evidence of unsuspected tuberculosis in childhood is also adduced in support of the figures obtained for the skin reaction. Meroz and Khalatoff[1] cite Binswanger as obtaining a percentage of 6·8 in children under the age of 1 year, and 39 per cent. between the ages of 2 and 4 years. Of children dying from causes other than tuberculosis, Ganghofner[2] gives 7·1 per cent. under 1 year, 16 per cent. from 1 to 2 years, and 26 per cent. from 6 to 8 years.

That the incidence of tuberculosis in early infancy is probably greater than the statistics show, is based on two considerations:[3] Firstly, that antibodies are deficient,[4] and hence the tuberculin reaction is non-existent; and, secondly, that the tubercles present are often in the prefollicular stage, and therefore not detected macroscopically.[5, 6]

The evidence obtained from X-ray examination appears to be largely confined to the demonstration of bronchial and mediastinal glands.[7, 8, 9] Though of undoubted value in many cases where the ordinary clinical examination reveals no lesion, it would not appear to be so reliable as the tuberculin test, since the results so obtained have been shown to be divergent and even contradictory. The evidence obtained in this manner of the condition of the lungs is of slight value, on account of the relatively small percentages of lesions of this organ in childhood. Lapage gives, out of 120 so examined, only eight who showed the apices affected.

Types of Tuberculous Infection.

Concerning the types of infection, perhaps the most interesting figures are those furnished by Park and Krumweide.[10] Though not intended as an index of the actual ratio of incidence of the various types of tuberculous infection, since the figures refer to the question of the type of bacillus involved, they give an approximate idea of the relative frequency of the types concerned, with perhaps a somewhat disproportionate incidence of abdominal tuberculosis, as the early investigators selected such cases in order to adduce evidence regarding a possible infection from a bovine source. Thus, out of a total number

[1] Meroz and Khalatoff: *Rev. méd. de la Suisse rom.* October 26, 1911.
[2] Ganghofner (cited by Newsholme): "The Prevention of Tuberculosis." London: Methuen. 1912.
[3] Emrys-Roberts; *Brit. Med. Jour.*, p. 210. February 1, 1913.
[4] Brendel and Müller: *Munch. Med. Woch.*, No. 9. 1909.
[5] Muggia: *La Pediatria*, No. 12. August 10.
[6] Takeya: "Arbeit. auf. d. Gebiet d. Path. Anat. u. Bakt., Tubingen," *v.* 7. 1910.
[7] Sluka: *Wien. Klin. Woch.* February 15, 1912.
[8] Lapage: *Brit. Med. Jour.*, p. 1376. November 16, 1912.
[9] Bythell: "X-Ray Diagnosis and Treatment." London: Henry Frowde. *Oxford Medical Press.* 1912.
[10] Park and Krumweide: *Jour. Med. Res.*, p. 111. September, 1912.

of 177 cases under the age of 5 years, and 368 cases between the ages of 5 and 16 years, the following percentages are given:

Form of Tuberculous Disease.	Age: Under 5 Years.	Age: 5 to 16 Years.
	Per Cent.	Per Cent.
Pulmonary tuberculosis	10·0	8·0
Tuberculous adenitis, axillary or inguinal ...	0·6	2·4
Tuberculous adenitis, cervical	10·0	28·0
Abdominal tuberculosis	7·0	10·0
Generalized tuberculosis	55·0	13·0
Tuberculous meningitis	9·0	2·7
Tuberculous bones and joints	7·0	25·0
Tuberculosis of skin	0·6	5·0
Genito-urinary tuberculosis	0·0	1·2

The infection of the bronchial and mediastinal glands, not specifically indicated in this list, is a type to which increasing attention is being paid, since the opinion is advanced that latent infection of these glands in infancy is the forerunner of pulmonary tuberculosis in later life.[1, 2] How far this opinion is justifiable is a point of very considerable difficulty, and until much more work has been carried out in the elucidation of this question, it would be wise to suspend judgment. While, no doubt, certain cases of pulmonary tuberculosis can be traced to direct extension from tuberculous bronchial and mediastinal glands, the incidence of exposure to air-borne tuberculous infection in later life, combined with the frequency of affection of portions of the lungs remote from the infected glands, would make us chary in accepting this opinion.

Ritter and Vehling[3] show that tuberculous joints and glands usually terminate in cure or latency; moreover, they have found that infection in early life leads to the development of a less dangerous and more chronic type of infection than where infection is more recent.

Hamburger considers the more usual chronic tuberculosis manifested in later life to represent what might be termed the *tertiary* stage of tuberculosis, the *primary* stage being the first infection in childhood, the *secondary* stage the acute form, chiefly of a generalized character. Of course, this conception involves the non-appearance of the secondary stage if the tertiary stage is to develop at all, and also postulates the opinion, expressed above, that the tertiary stage is directly traceable to the primary. What may, perhaps, be nearer the truth is the supposition that the so-called primary stage is the means of producing a form of immunity,[4] and Calmette[5] goes so far as to suggest its production by artificial means.

[1] Stoll: *Amer. Jour. Med. Sci.* January, 1911.
[2] Hamburger: "Allgemeine Path. u. Diagnost. Kindertub," S. 98. 1910.
[3] Ritter and Vehling: *Berl. Klin. Woch.* October 25, 1909.
[4] Römer: *Berl. Klin. Woch.* May 3, 1909.
[5] Calmette: *Univ. Med. Soc.* April, 1912.

The question of the production of immunity in tuberculosis is a vexed one, and much needs to be done to place it on a satisfactory basis. Recent experimental work[1] has shown that in calves a certain degree of resistance has been produced; but the number of experiments and the time allowed to elapse do not permit of generalization on this very important point.

Types of Organisms.

There is general agreement concerning the distinctions, cultural and inoculative, that serve to separate the human from the bovine type of tubercle bacillus, but the statistics available concerning the relative frequency of the types of bacilli found in tuberculous lesions in childhood show that differences can and do exist.

For the most complete tables concerning this relative frequency we are indebted to Park and Krumweide,[2] who have tabulated the results from 545 cases, all under the age of 16, drawn from investigations published in various parts of the world. They find that under 5 years of age, out of 368 cases examined, 79 per cent. were due to the human, and the remaining 21 per cent. to the bovine, variety. Out of 177 cases between the ages of 5 and 16 years, 74 per cent. were due to the human, and the remaining 26 per cent. to the bovine, variety; whereas out of 955 cases occurring after the age of 16 years only 1·05 per cent. were traceable to bovine infection.

Calmette's figures are in substantial agreement; they read as follows: Up to the age of 5 years, 26·5 per cent.; from 5 to 16 years, 25 per cent.; and over the age of 16 years, 1·9 per cent., as due to infection by the bovine variety of the tubercle bacillus. Going with more detail into the figures furnished by Park and Krumweide, we find the ratios given in the table on p. 106.

From a study of these figures, which include a large number of children who had slight or latent infections discoverable after death from other causes, it will be seen that where the bacillus reached the child, presumably by way of the alimentary system, the percentage of cases due to bovine infection is correspondingly high, especially so during the age-period from birth to 5 years.

The recent figures concerning tuberculosis of bones and joints published by Frazer[3] differ very markedly from those of all other observers. The result of the examination of 70 consecutive cases of such lesions, with three exceptions, from children 12 years of age and under, obtained at the time of operation in Edinburgh and its neighbourhood, are given as follows: Under 5 years: human, 12 cases; bovine, 32; human and bovine, 3; bovine percentage, 72·7 to 68.

[1] Griffith: Final Rep. Roy. Com. on Tub., Part II., App., vol. iii. 1911.
[2] Park and Krumweide: *Jour. Med. Res.*, September, 1912.
[3] Frazer; *Jour. Exper. Med.*, p. 432. October, 1912.

From 5 to 12 years: human, 11 cases; bovine, 9; bovine percentage, 45. Adults, 3 cases, all human. In the first place, these figures place the incidence of bovine infection in tuberculous lesions of bones and joints upon a much higher level than any statistics hitherto available; and, in the second place, they indicate a decreasing incidence of bovine infection in the second age-period as compared with the first; while in the few cases examined in adults it will be noted that the infection is wholly human in character.

Form of Tuberculous Disease.	Age: Under 5 Years.			Age: 5 to 16 Years.		
	Cases.		Bovine Per-centage.	Cases.		Bovine Per-centage.
	Human.	Bovine.		Human.	Bovine.	
Pulmonary tuberculosis ...	35	1	2·8	14	0	0·0
Tuberculous adenitis, axillary and inguinal.	2	0	0·0	4	0	0·0
Tuberculous adenitis, cervical.	15	24	61·0	36	22	38·0
Abdominal tuberculosis ...	10	14	58·0	9	10	53·0
Generalized tuberculosis, alimentary origin.	17	15	47·0	3	4	57
Generalized tuberculosis...	74	7	8·6	5	1	15·0
Generalized tuberculosis, including meninges, alimentary origin	5	10	66·0	1	0	0·0
Generalized tuberculosis, including meninges.	76	1	1·3	10	0	0·0
Tuberculous meningitis ...	28	4	12·5	3	0	0·0
Tuberculosis of bones and joints.	27	0	0·0	41	3	6·8
Tuberculosis of skin ...	2	0	0·0	4	6	60·0
Sepsis, latent bacilli ...	1	0	0·0	0	0	0·0
Genito-urinary tuberculosis	0	0	0·0	2	0	0·0
Tuberculous tonsils ...	0	0	0·0	0	1	100·0

Such extreme divergences only emphasize the need of correlation of methods, if such correlation be found necessary, and the further compilation of evidence from all sources regarding these very important differences, which seem at present so difficult to harmonize.

Portals of Entry of Tubercle Bacilli.

It is generally agreed that the chief avenues of infection are, in the words of Calmette,[1] "the mucous membranes of the natural cavities of the body, particularly the digestive and pulmonary epithelium, and to these may be added the naso-pharynx." Of these channels of invasion there appears to be divergence of views regarding the one most commonly chosen. Calmette holds the digestive path, but the majority of observers claim the respiratory tract as the most usual.

[1] Calmette: *Echo Méd.* April 21, 1912.

Experimental evidence[1,2] shows that, all things being equal, the number of tubercle bacilli necessary to induce a pulmonary lesion is relatively small as compared with the number necessary to produce a lesion elsewhere; and there is also evidence to show that tubercle bacilli are capable of entering the intestinal wall without producing a lesion at the site of entry.[3,4,5,6,7]

At the same time, it must be borne in mind, as pointed out by McNeil, that where the defences of the mucous membranes, both of the respiratory and of the alimentary tract, are weakened, the penetration of tubercle bacilli is proportionately simplified; especially is this consideration of importance when dealing with alimentary infection in young children, who so frequently are the victims of digestive disturbances.

Concerning the naso-pharynx and the skin as points of entrance there is no controversy; all are agreed that infection can and does occur through these surfaces. But there is some element of doubt existing in the minds of most observers as to whether antenatal transmission of the tubercle bacilli through the placenta should be allowed to take its place amongst the other portals of entry. The chief arguments against such transmission are based upon the rarity of congenital tuberculosis.[8,9] Schmorl[10] denies the possibility of infection unless the placenta is definitely diseased. But when the practical tuberculization of well over 90 per cent. of individuals is taken into account; that the stress of pregnancy is conducive to the lighting up of latent foci;[11] that the circulating blood of the mother may contain tubercle bacilli[12,13,14] in far greater numbers than under normal conditions; that, since the normal mucous membrane of the intestine may allow penetration by the tubercle bacillus and leave no trace of its entry, similar penetration may occur through the cells of the chorionic villi; that the bacilli thus introduced may be few in number; that the lesions may be prefollicular and eventually retrogressive, and that the tuberculin reaction may yet be absent—all these are arguments which are adduced in favour of such a contention.

[1] Cobbett: Second Internat. Rep. Roy. Com. on Tub., App. III., p. 219. 1907.
[2] Findel: *Zeitschr. f. Hyg.*, Bd. lvii., S. 101.
[3] Cobbett: *Jour. Path. and Bact.* April, 1910.
[4] Griffith: Second Internat. Rep. Roy. Com. on Tub., App. I., pp. 628 and 696. 1907.
[5] Ravenel: *Jour. Med. Res.*, vol. x., p. 460. 1903.
[6] Ravenel and Reichel: *Jour. Med. Res.*, vol. xviii., No. 1, p. 1. 1908.
[7] Adami: "Principles of Path.," vol. i., p. 290. 1908.
[8] Philip: *Brit. Med. Jour.* April 20, 1912.
[9] Oliari: *La Pediatria*, May, 1911.
[10] Schmorl (cited by Dietrich): *Berl. Klin. Woch.*, p. 877. 1912.
[11] Baldwin: "Studies from Saranac Lab. for Study of Tub."
[12] Jessen and Rubinowitsch: *Deut. Med. Woch.* June 16. 1910.
[13] Rosenberger and Liebermeister (cited by Jessen and Rubinowitsch): *Loc. cit.*
[14] Kurashige: *Zeitschr. f. Tuberkulose*, vol. xvii., p. 347. 1911.

Prophylaxis.

Undoubtedly the most important measures that can be utilized to combat tuberculous infection in infancy and childhood are those directed, in the first place, to the provision of all that is best, both in housing and feeding, whereby the natural forces of resistance are strengthened and amplified; in the second place, to the elimination of infection, so far as is possible, by way of tuberculous sputum or tuberculous milk; and, in the third place, to the awakening of the national conscience to the virtual immorality of the propagation of the weakly and unfit.

PERSONAL OPINIONS.

POST-GRADUATE TEACHING IN TUBERCULOSIS.

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Tuberculosis being one of the most prevalent diseases, and three full years of the medical curriculum being devoted to the pathological and clinical study of disease, the need of post-graduate teaching in tuberculosis is not on first consideration very apparent. When, however, the question is carefully inquired into it becomes obvious that very few medical students have had the opportunity before graduation of becoming acquainted with some of the most important aspects of the tuberculosis problem. It must not be concluded that the incompleteness of their knowledge is the result of lack of industry on the part of the students, or of gross inefficiency on the part of their teachers. One of the chief reasons for the present state of things is that, up to recent times, no provision had been made for the accommodation of patients affected with several forms of tuberculosis in most of the hospitals accessible to medical students. General hospitals have from necessity been compelled to reserve their beds for patients in urgent need of forms of treatment from which relief could be expected in a comparatively short time. The admission of consumptives either at an early or at a late stage of their illness would have resulted in the hospitals being practically closed to patients suffering from other diseases.

Special Institutions for the Study of Tuberculosis.

The need of sanatoria for early cases, and of hospitals and homes for more advanced cases of tuberculosis, has long been felt, and the establishment of such institutions has been in the past mostly due to the advocacy of members of the medical profession; but the opportunities which these institutions have offered for study have so far been inadequate. The National Insurance Act should before long have removed this important difficulty. Unfortunately, the medical student will even then have to contend with another serious disability.

The average student in undergraduate days cannot devote sufficient

time to highly specialized studies without neglecting those general branches of medical knowledge which form the foundation upon which he must build his clinical experience during his post-graduate career. Teachers will always feel reluctant to encourage early specialism or to impose upon students the task of making themselves conversant with views and methods which have not been submitted to the test of critical investigation.

The time has not yet come when the teachers of Pathology, Therapeutics, and Clinical Medicine will be able to speak with absolute confidence of the advantages that may be expected, or the dangers to be apprehended from the use for diagnostic or curative purposes of various tuberculins (old, new, original, purified, mixed, modified, etc.), of bacillary emulsions sensitized or not, of modified tubercle bacilli, of anti-tuberculous sera, of immune bodies, etc. Among clinical experts whose opinion is generally recognized to be worthy of respect, there is no agreement as to the question of dose, rate of increase, frequency, general conduct of treatment, selection of cases, etc. Many of the views expressed upon these subjects have still to stand the test of experience and time, it is at present useless to rely upon the pronouncements of authority, because the views of recognized authorities are mutually destructive.

Tuberculosis a Medico-Sociological Question.

Notwithstanding the progress which has been made in our knowledge of the various types of tuberculosis; of predisposing factors such as poverty, alcoholism, occupation, heredity; of sources and channels of infection; of latency; of spontaneous recoveries; and of several other important questions, caution and further investigation are still needed, for the adoption of certain extreme views would lead to revolutionary changes in methods of prevention, some of which might be more detrimental than beneficial.

Better opportunities for investigation than have been available in the past should result from a proper administration of the National Insurance Act; it is therefore desirable that the medical men who under the provisions of that Act are entrusted with the investigation and treatment of tuberculous cases should be prepared to take advantage of all the opportunities offered to them for the advancement of our knowledge of tuberculosis. A working acquaintance with the methods adopted in current work at any special institution where clinical and administrative experience has been gained is not sufficient. What the tuberculosis officer needs is: To have placed before him reliable accounts of the facts at present known; to be made familiar by practical studies with the methods by which he can investigate critically the value of the announcements of new discoveries

which are continually appearing in the journals; to be able to estimate the soundness of the methods which he has had the opportunity of carrying out himself (or of observing the use of) in the institutions where he has acquired his practical knowledge of the diagnosis and treatment of various forms of tuberculosis.

This kind of instruction is not suitable for young students, whose first aim should be to make themselves familiar with well-ascertained facts and theories bearing generally upon the practice of medicine and surgery. The three years at their disposal are barely sufficient for this purpose. The recommendations closing the Report of the Departmental Committee on Tuberculosis (1912, 42 (8), p. 28) appear therefore to be fully justified.

It seems, however, a hard demand on men who have already devoted some five or six years to the study of their profession to ask them to undergo a further course of severe training. That not a few are prepared to submit to this demand has recently been shown by the number of graduates who have voluntarily joined a six months' course instituted in connection with one of the provincial universities. This is in accordance with the old Hippocratic spirit; a physician worthy of his calling is always ready to make all the sacrifices necessary to the efficient discharge of his duties. But is it just to expect that this additional sacrifice should be entirely borne by men who have already devoted more time to the study of their profession than is expected from those preparing for other professions often more lucrative and not less respected? Might it not be more equitable if men selected by the authorities as generally well informed, skilful, and qualified for the discharge of responsible medical duties, were allowed after their appointment to devote part of the first year to the study of the special pathological, administrative and clinical work to which they will have to devote themselves in the service of the public?

INSTITUTIONS FOR THE TUBERCULOUS.

THE PINEWOOD SANATORIUM.

PINEWOOD SANATORIUM, formerly known as the London Open-Air Sanatorium, was built and equipped in 1900 by the generosity of the late firm of Wernher, Beit and Co. It is now maintained by a guarantee fund subscribed by the leading banks, insurance companies, and financial houses, and is primarily for the benefit of the guarantors' clerical staffs and their near male relations. Subject to this priority, it is, however, open to all salaried clerks on special terms, and to professional men and others. The fees range from two to three guineas weekly.

The Sanatorium is situated almost in the centre of the pine forest district of Berkshire, and stands on gravel and sand of the Upper Bagshot beds. The soil is consequently dry. According to Monckton, the mean temperature throughout the year is approximately 48° F., the rainfall of the district about 25 inches throughout the year, and "there are probably about 1,500 hours of bright sunshine in the year." The climate is altogether an exceedingly healthy one and, as compared with the south coast of England, is "rather cooler, with somewhat less sunshine and less rain."

The Sanatorium consists of four buildings, two each on the east and west sides of a central administrative block, joined on the northern side by a corridor, on the northern side of which are the baths, douches, and sanitary offices. A thorough cross ventilation has been insured throughout both wings by the corridor and the divisions between the blocks. At the end of each wing, and attached to it, is a balcony divided into a southern and northern half for use in winter and summer respectively. Each patient has a separate bedroom.

Open-air treatment at all hours, weathers, and seasons, is, of course, enforced as elsewhere, and the daily routine is probably very similar. It is graded in the first place into: (1) Resting, (2) some exercise with rest, (3) full exercise, (4) manual labour. Games are permitted, but are limited to the quiet games such as draughts, dominoes, chess, card-games, croquet and putting golf, and billiards, the latter game being played under open-air conditions, with all windows and doors wide open. Tuberculin is not used as a routine measure, but is selected for individual cases suitable for it.

The Sanatorium is for men only, and patients are now selected by examination by two physicians in London appointed for that purpose, Dr. Hector Mackenzie and Dr. A. T. Davies. A few cases may be admitted by certificate where the residence of the patient would render it an unquestionable hardship for him to present himself for examination.

H. J. PHILLIPS, M.R.C.S., L.R.C.P.,
Medical Superintendent.

THE PINEWOOD SANATORIUM: FRONT ASPECT, LOOKING EAST.

NOTICES OF BOOKS.

RECENTLY there has been issued an important volume which forms the fourth supplement to Professor L. Brauer's "Beiträge zur Klinik der Tuberkulose."[1] It contains sixteen papers which were read at the seventh meeting of the German Association of Sanatorium Medical Attendants. These papers represent valuable contributions to the literature of tuberculosis. The work is also furnished with comprehensive bibliographies. The range of subject is wide, but the fact is never lost sight of that the sanatorium exists for patients, and not patients for laboratory purposes. Spontaneous and artificial pneumothorax are discussed by Dr. Koch, Medical Superintendent at the Sanatorium Schömberg. The paper is illustrated by twenty-four excellent Roentgen plates. Dr. Koch advocates Forlanini's puncture method which he employs without anæsthesia of any kind. He contrasts six spontaneous cases with six artificial cases. In spontaneous cases the subsequent exudate is not sterile, as in artificial pneumothorax, and death nearly always occurs. Where adhesions exist, the prognosis of artificial pneumothorax is not favourable, but even so, sufficient improvement follows the operation to justify its adoption; indeed, Dr. Koch asserts that the doctor is conscientiously bound to give the patient entrusted to him this chance of improvement or recovery. In the discussion that followed, Brauer (Hamburg) drew attention to the dangers attending the puncture method and advocated the incision method as safer. Deneke (Hamburg) employs pure oxygen instead of nitrogen for inflating the pleural cavity. He considers that the employment of O_2 reduces the danger of gas embolism to a minimum, as it is readily absorbable by the blood. Opinions on this subject were, however, divided. Dr. C. T. Curschmann (Baden) read a paper on the significance of the "hereditary taint" in influencing the course of the disease, and quoted a large number of authorities holding divergent opinions. Dr. Georg Liebe (Elgershausen) laid stress on the futility of laying down arbitrary technical standards for the admission of cases to sanatoria. Who is a suitable sanatorium subject? He criticized the "bacilli-haunted sputum" standard. Clinical findings should be the criterion. The sanatorium should open its doors, not to the tubercle bacillus, but to manifestly sick persons. He also warns against the introduction in the sanatorium of too complex and elaborate modes of disinfection. Cleanly hygienic habits, not much more strict than those to be advocated on public health and æsthetic grounds alone, are far more likely to meet with ready adoption by discharged patients. Liebe also discusses *infection* and *disposition*. He quotes Römer, who said that probably every person crosses the threshold of childhood already infected with tuberculosis. Such a primary infection, according to

[1] "Verhandlungen der Vereinigung der Lungenheilanstaltsärzte" (Transactions of the Seventh Meeting of the German Association of Sanatorium Medical Attendants), Hamburg, June 2 to June 5, 1912. Edited by Dr. C. Pischinger, Secretary to the Association. Pp. 317, with numerous plates and eight tables. Würzburg: Curt Kabitsch, 1913. Price 8 marks.

Römer, confers a relative immunity for the remainder of life. This "immunity" is, however, not absolute, but is contingent upon the dosage of subsequent reinfections. In a tubercle-free subject a mild dose of the virus produces latent tuberculosis: on an "immune" subject it has no effect at all. A larger dose causes chronic disease in a tubercle-free subject, but has no effect on immune subjects. Only massive doses have a deleterious effect on immune subjects, while they produce an acute form of the disease in virgin soil. In addition to dosage, the factor of disposition must be reckoned with. Römer and Wolff hold that immunity is not synonymous with annihilation of the bacilli, but implies their *inhibition* for a longer period, and, in some cases, for ever. The fact that the specific contagium is only dormant but is not radically destroyed indicates the vital importance of raising the resistant powers of the subject which harbours it. Dr. G. Hermann Sieveking (Hamburg) gives an interesting account of the measures now adopted in Hamburg for the prevention of tuberculosis. Hamburg can boast of an almost unbroken medical record that dates from 1820. A great fire that raged in 1842 for three days was not without salutary effect, as many insanitary areas were destroyed. The death-rate from tuberculosis is decreasing steadily in Hamburg. In 1911, 1,149 persons died of tuberculosis out of a population of 953,000 = 1·22 per cent. Since October, 1907, seven dispensaries have been established. In 1911, 10,513 visits were paid by the dispensary nurses, and 4,291 domiciles were visited. The cost is met by grants from the Hamburg State, the Invalidity Insurance Institution, and the Krankenkassen, each contributing one third. The last subscribe 5 Pfennig per head of their members per year. It is instructive to note that all doctors examining or attending dispensary patients are adequately paid. This system has been found to be conducive to efficient service and smooth working. Dr. Hans Much, Oberarzt at the Eppendorfer Krankenhaus, and some of his fellow-workers in the study of immunity, contribute a series of profoundly interesting papers under this head. Much points out some paradoxical truths in connection with tuberculosis. We know that it is possible successfully to immunize animals against tuberculosis. We also know that it is given to man automatically to immunize himself against tuberculosis. In fact, we may safely say that there is hardly a disease in which such a superlative degree of self-immunization has been achieved by man as tuberculosis. But we must sorrowfully admit that we have it not as yet in our power accurately to control and direct this immunization. The results attained by the use of tuberculin weigh almost negligibly in the balance against the vast mass of the disease that eludes the measures adopted for the artificial production of biological immunity. On the other hand, the immunity that man secures for himself is extraordinarily great. Much attaches great importance to the position of the tubercle bacillus in the system of the acid-fast bacteria. The acid-fast organisms are in a class by themselves and display certain well-marked biological relationships with each other. Deycke succeeded in producing a specific reaction in tuberculous subjects and lepers with a fatty substance derived from a non-pathogenic saprophyte. It was further found that a fatty substance, derived from the tubercle bacillus, gave the same specific reaction with lepers and with tuberculous subjects as the fatty substance derived from the saprophyte. It was then proved that the reaction capacity of acid-fast pathogenic

organisms extended still further, for the specific antibodies of infected persons gave specific reactions with acid-fast species that were non-pathogenic. Tuberculin and bacillary emulsions derived from leprosy, smegma, "timothee-grass," and blindworm were used. The reactions showed a regular scale of gradations in perfect accord with the degree of relationship existing between the tubercle bacillus and the other organisms. The tubercle bacillus has thus a certain property in common with other acid-fast organisms. As, however, the protein and the fatty substances contained in these organisms are quantitatively constant, it is clear that the degree of reaction depends on some *specific* factor. Much and Deycke have elsewhere shown the complex nature of the tubercular virus. Hence the highly complex biological effects that are called out. They have found it convenient to split up the virus biologically and biochemically into four large groups, as follows: (1) Protein, (2) Neutral fat, (3) Fatty acid-lipoid, (4) Toxic body. Much calls these components *partial antigens* (Partialantigene). The object of his researches was to demonstrate the capacity which the partial antigens *severally* possessed for producing reactions and calling out antibodies. This was done by means of complement-fixation and anaphylactic tests. All four partial antigens were capable of producing antibodies. These he calls *partial antibodies* (Partialantikörper). They were next tested for order of significance and, as the result of animal experiment, the most important rôle was assigned to the *neutral fat antibody*. It was found that animals in good condition invariably harboured all four antibodies. Whether one single antibody is capable of promoting a reaction with the tubercle bacillus could not therefore be demonstrated by animal experiment. The study of the production of fat antibodies opens out a new field of research, and will in future claim earnest attention at the hands of biologists and tuberculosis research-workers. With *chemical* fats it is not possible to produce antibodies, while the preparation of neutral fats of bacterial origin is exceedingly difficult. Much and Deycke found that by treating the tubercle bacillus with lactic acid it was possible to *liberate* the partial antigens and to produce specific fat antibodies in previously prepared animals. Kleinschmidt, it is interesting to note, was able to isolate antibodies for Chaulmoogra oil, which is of vegetable origin, but only in animals that were infected with acid-fast bacilli. Briefly stated, Much arrives at the following conclusions: (1) Human subjects, whether tuberculous or non-tuberculous, may harbour partial antibodies in their blood which are demonstrable by complement-fixation methods. Tuberculous and non-tuberculous subjects alike may react to a bacillary emulsion—*i.e.*, to the sum of the partial antigens. (2) A reaction with each group of the partial antigens does not invariably take place. (3) The partial antibody for *neutral fat* appears to play a special rôle. It seemed important, therefore, to separate the protein from the fatty substances.[1] The conclusion arrived at is that, in order to overcome tubercle infection successfully, it is essential that *all* the partial antibodies should be present in the blood plasma. If, then, a tuberculous subject is quite devoid of these antibodies it is,

[1] It was found that the success of Deycke's *nastin-therapy*, as applied to leprosy, is based on the fact that it goes hand-in-hand with the production and increase of the *neutral fat antibodies* which had hitherto been non-existent in the plasma of the patient.

above all, necessary to meet this deficiency. In the case, however, of patients who harbour one or two antibodies the case is not so simple. To introduce into such a patient the complete sum of antigens would do more harm than good. The result might be to create a very dangerous "negative phase" or to produce anaphylaxis. If an individual is deficient in one partial antibody, the missing antibody may be introduced "ready-made," or he may be supplied with the partial antigen requisite for evoking that particular partial antibody. Such a therapy might be described as a *vaccine therapy with partial antigens*. By examining the blood of a patient at different times, marked variations are noted. Sometimes all the partial antibodies are present, sometimes only one or two, sometimes none. In guinea-pig immunization experiments it was found that injecting human blood plasma incompletely furnished with antibodies produced rapidly fatal consequences; whereas injecting plasma containing all the antibodies, produced the most astounding immunization results. The immunized animals were then insensitive to enormous doses of virus. Now comes a further question: Once the infection has been withstood, is it necessary that the blood should continue to harbour all the antibodies? This question Much, on the strength of his experiments, answers in the negative. He suggests several explanations. He states that prolonged observations only confirm his belief that the immune bodies demonstrable in the blood cannot possibly be the *sole* factors of tuberculosis immunity. We have, in other words, to deal, not only with a *humoral* immunity but with another class of immunity also, and this is probably of a *cellular* nature. Much contends that the *humoral* immune bodies *initiate* immunity. They are, therefore, absolutely essential for the overcoming of an infection. They may possibly be aided in this task by the *cellular* immune bodies. But once the infection is overcome, the immunity thus inaugurated is of a cellular character and is enduring in its nature, and a continuous production of humoral antibodies for all the partial antigens is no longer necessary. If the body becomes reinvaded with new virus, and fresh defensive measures are indicated, the cellular immunity already acquired can deal with the contingency—the more so in that, at critical moments, a condition of humoral immunity can always be re-established—*i.e.*, the blood can *again* be charged with all the partial antibodies. This state of things can best be explained by physical laws. Much urges the necessity for exact study of cellular immunity, and considers that a clearer knowledge of the subject will prove of profound significance in the treatment of tuberculosis. In his opinion, the humoral antibodies are primarily demonstrable by complement-fixation reactions; hypersensitive reactions will also bring them to light, but will, at the same time, or even primarily, demonstrate the presence of *another* immune body which is of a cellular nature. In any practical application of these theories to human patients, we must first direct our attention to the humoral antibodies in order to overcome the infection, and then devote our further efforts towards securing cellular immunity. With regard to *tuberculin-therapy*, Much says that we can now better understand why so little valid success has as yet been achieved. It is true that "cures" do take place, but, in comparison with the enormous number of patients, the "cures" present a ridiculously small fraction of persons treated. The haphazard introduction of a tuberculin into a tuberculous subject who already harbours

some partial antigens, will, in many cases, prove valueless, in many others do actual harm, and will be effective only in those subjects whose blood plasma is minus that particular antibody for which the corresponding partial antigen is forthcoming in the tuberculin selected. If treatment is to be administered on logical, definite, and accurate lines, then it will, in all cases, be necessary not only to arrive at a clear knowledge of the configuration of the patient's blood plasma, but also to know exactly *which active partial antigens are contained in the tuberculin employed.* In the Eppendorfer Krankenhaus, nine patients are being observed on the lines advocated by Much, and their serological and clinical notes afford valuable data. Stress is laid on the absolute necessity for frequent serological control examinations when treating a patient with tuberculin. In the case of such an elusive and complex disease as tuberculosis, the most thorough clinical examinations do not suffice for acquiring accurate information regarding what is actually taking place. Statistics regarding the efficacy or non-efficacy of various tuberculins are utterly valueless at the present moment, and are very untrustworthy guides. The sum of antibodies is not of prognostic significance. The antibodies are essentially phenomena that accompany favourable and unfavourable phases of the disease and vary in harmony with these. The above-mentioned exhaustive observations on patients are the necessary prelude to the elaboration of a definite scheme of treatment strictly in accordance with Much's immuno-therapeutic programme, and further reports will be awaited with profound interest by all workers in the field of laboratory research and clinical treatment.

EMILIA V. KANTHACK DE VOSS.

THE USE OF TUBERCULIN.

Drs. Hamman and Wolman have written a book[1] on the employment of tuberculin, which will be found to be a very careful review of the world's experience of tuberculin in the various methods of diagnosis and treatment commonly in use for pulmonary and other tuberculous lesions. The theory of the mode of action and the manufacture of all the more commonly used tuberculin is given in detail. The enthusiast will be perhaps a little chilled by the modest claim for tuberculins, "that by the use of them life is prolonged, the development of virulent lesions hampered, and the healing of slight lesions furthered." The sceptical reader will be favourably impressed by the statement that tuberculin is not a "cure, but a favourable factor"; whilst the experienced and unbiassed worker will be ready to subscribe to the finding of Ziegler, after extensive observations in the post-mortem-room, "that there is a greater tendency to fibrosis in those (cases) treated by tuberculin, than in those not so treated," and the summing up of the authors, "that tuberculin is not a brilliant remedy, but an agent that stimulates the usual healing to take place more rapidly than it otherwise would."

DAVID M. BARCROFT, M.D.

[1] "Tuberculin in Diagnosis and Treatment," by Louis Hamman, Associate in Medicine in the Johns Hopkins University and to the Johns Hopkins Hospital, and Samuel Wolman, Instructor in Medicine in the Johns Hopkins University. Pp. 350. New York and London: D. Appleton and Co. 1912. Price 12s. 6d. net.

TUBERCULOSIS IN CHILDREN.

From the clinical standpoint, lung tuberculosis in children is practically always secondary to disease of the tracheo-bronchial glands. The monograph of Ghon,[1] however, carries us a step farther back to establish the fact that there commonly exists a still older focus in the lung itself. All with experience of large post-mortem material in children are familiar with the firm lung nodule, generally caseous or fibro-caseous, often wedge-shaped and situated just below the pleura, commonly at the base of the lung, or, if in the upper, lobe but rarely at the apex. Parrot referred to the tracheo-bronchial glands as the "mirror" of the lungs; he was the first to point out this lung focus, primary to the glandular disease, in tuberculosis of childhood. Hutinel was in practical agreement, but it was Küss who especially forwarded this discovery. Later it was confirmed by E. and H. Albrecht, and by many others, including Ghon, whose present book deals with 184 cases of tuberculosis in children. Among these he was able to demonstrate a primary lung focus in no less than 92·4 per cent.

CLIVE RIVIERE, M.D.

NEW WORKS ON TUBERCULOSIS.

The seventh edition of Bandelier and Roepke's classical work[2] certainly fulfils the claim made on its title-page to be entirely remodelled (gänzlich-umgearbeitet). Its distinguishing note is "reconstruction," and that we think wholly to the improvement of the book. The volume now opens with a Theoretical Part as a separate section, and we can hardly help wondering why such an obviously desirable arrangement has been delayed so long. Theories of the nature of the tuberculin reaction and of the action of tuberculin as a factor in treatment fill this section. Much of this is culled from various parts of the book, where in former editions it had for the most part lain hidden; some is entirely new. Five theories of the tuberculin reaction are discussed, and favour is given to that of Wassermann, wherein "antituberculin" in the tubercular tissues is presumed to attract tuberculin into the foci of disease. The healing powers of tuberculin are discussed under the headings of tolerance (Giftfestigung), focal reaction, and antibody formation, and under the last heading due attention is given to antitoxin, agglutinin, opsonin, phagocytosis, bacteriolysis, and complement fixation. Some of these have been discussed in former editions, but their new setting lends them much of the glamour of novelty. The Diagnostic Section of the book remains much as heretofore, though certain changes of arrangement are visible here as elsewhere throughout the volume. Much more striking is the change in the Therapeutic Section, where, again with much advantage, the "general" has been weeded out from the "particular." Where formerly it opened with the consideration of pulmonary tuberculosis, we now find a description of tuberculin-therapy on general lines which cannot but

[1] "Der Primäre Lungenherd bei der Tuberkulose der Kinder," by Anton Ghon. Pp. 143. Berlin and Wien: Urban and Schwarzenberg. 1912.

[2] "Lehrbuch der Spezifischen Diagnostik und Therapie der Tuberkulose." Bandelier and Roepke. Pp. 325. Seventh edition. Würzburg: Curt Kabitzsch. 1913. Price M. 8.30; bound, M. 9.50.

commend itself to readers. Included in this is a big slice devoted, as in former editions, to the description of tuberculin preparations. Here we notice that albumose-free tuberculin, first introduced into the sixth volume, has been rescued from the tuberculin refuse-heap, and has secured a good place immediately following Old Tuberculin. Its preparation is described, its suitability for ambulant treatment, and thereafter reference made to its variability of strength when first put upon the market. We also get needful warning of the fact that, in spite of standardization, tolerance to Tuberculin A.F. is not tolerance in full degree to Old Tuberculin, of which a twentieth of the dose may cause high fever in a patient immunized against the former. Following the "general part" of tuberculin-therapy is a "special part" in which pulmonary disease properly takes the foremost place. Much of this is also rearranged, rewritten, and amplified. In the Conclusion appears a small polemic devoted to the waning claims of tuberculin diagnosis. The authors tilt at Schröder, whom they accuse of misinterpreting to the world the opinions expressed on this point at the Conference of Sanatorium Physicians held at Düsseldorf in 1911.

CLIVE RIVIERE, M.D.

Drs. Bandelier and Roepke by their "Die Klinik der Tuberkulose" provided German medical practitioners with a comprehensive and systematic treatise on all forms of tuberculosis, and this proved so popular that within eighteen months a second edition was called for. It is well, therefore, that a worthy English edition of so admirable a work should now be available.[1] All concerned in its production are to be congratulated. The translation has been accomplished with grace and accuracy, while the printing and general format of the book could scarcely be bettered. The book is one which every practitioner should procure and carefully study, especially now that responsible duties relating to the diagnosis and domiciliary treatment of tuberculosis are being undertaken by numerous medical men. The treatise opens with a general description of ætiological factors, and then, in a series of well-arranged, lucidly expressed, and thoroughly practical chapters, the various forms of tuberculosis affecting the different parts of the body are dealt with in detail. There are also sections on Miliary Tuberculosis, Scrofula, and Tuberculosis in Children. Select bibliographies appear in a "List of Authorities," but, as is customary with German works, references to the writings of English experts are conspicuous by their absence. With Bandelier and Roepke's fine work as guide and counsellor, medical practitioners will be provided with the best of modern theoretical equipment for dealing with all classes of tuberculous patients.

The literature of tuberculosis is so immense as to be unmanageable; we are therefore grateful to Dr. Köhler for his scheme to provide a yearly summary. If all future issues maintain the high level of excellence attained in the volume which lies before us, medical prac-

[1] "A Clinical System of Tuberculosis, describing all forms of the Disease," by Dr. B. Bandelier, Medical Director to the Sanatorium Schwarzwaldheim at Schömberg, near Wildbad; and Dr. O. Roepke, Medical Director to the Sanatorium for Railway Workers at Stadtwald, in Melsungen, near Cassel. Translated from the second German edition by G. Bertram Hunt, M.D., B.S., Late Physician to the Scarborough Hospital. Pp. xii+528. London: John Bale, Sons and Danielsson, Ltd., 83-91, Great Titchfield Street, Oxford Street, W. 1913. Price 21s. net.

titioners—and, indeed, all students of tuberculosis—may well give thanks. We, at all events, welcome the English version of the 1911 issue,[1] and trust English and American readers will see that it is possible to insure the prompt publication of future volumes. The records are conveniently grouped under six sectional headings—General, Distribution, Etiology, Pathology, Diagnosis, Prophylaxis and Treatment. Full references appear as footnotes, of which there are no less than 179. There are well-arranged indexes to authors and subjects. Dr. Krohn, the translator, says in his preface: "It would also be a great advantage if a similar report could be compiled and published dealing with the research work on tuberculosis done in Great Britain and America. The two reports would then form an international annual report of tuberculosis research work." We quite agree, and we trust the publishers who have shown enterprise and public spirit by the issue of this volume will be able to provide for the carrying out of this wise suggestion.

The Report of the Tenth International Tuberculosis Conference, held in Rome a year ago, is now available in a handsome volume.[2] In addition to the matter relating to the business and personnel of the Conference there are numerous papers and records of discussions on such subjects as "The Relation between the Human and Bovine Types of Tubercle Bacilli," "Various Forms of Specific Treatment of Tuberculosis," "Tuberculosis and Women," more particularly as regards the rôle of women in the Tuberculosis Campaign. Perhaps the most valuable part of the whole volume is that which contains the "Reports on the progress of the Campaign against Tuberculosis in the various countries." There are communications from the representatives of twenty-one countries, Sir Robert Philip, of Edinburgh, representing Great Britain. The eleventh Conference meets in Berlin this year, and members of the twelfth Conference will gather in Berne in 1914.

Under the somewhat sensational title of "Consumption Doomed" there has been issued an English version of a lecture delivered by Dr. Paul Carton, in France.[3] The book is of no scientific value, as the following extravagant and seriously erroneous statement will afford sufficient evidence: "I do not hesitate to maintain, on the one hand, that the surest way of becoming tuberculous is to consume raw meat during some months, and, on the other hand, that the best weapon with which we can fight tuberculosis is the non-flesh dietary." It is

[1] "Annual Report on the Results of Tuberculosis Research, 1911," by Dr. F. Köhler, Head Physician of the Holsterhausen Sanatorium, near Werden on the Ruhr. Reprint from the "Clinical Year-Book," edited by Dr. Naumann, Wirkl. Geh. Ob.-Reg.-Rat und Ministerialdirektor, and Professor Dr. M. Kirchner, Wirkl. Geh. Ober-Med.-Rat und Ministerialdirektor. Vol. xxvi., translated by Ronald E. S. Krohn, M.D. Lond. Pp. viii+248. London: John Bale, Sons and Danielsson, Ltd., Oxford House, 83-91, Great Titchfield Street, Oxford Street, W. 1913. Price 7s. 6d. net.

[2] "Zehnte Internationale Tuberculose-Konferenz" ["Tenth International Tuberculosis Conference," Rome, April 10-14, 1912]. Bericht im Auftrage der Verwaltungs Komission der Internationalen Vereinigung gegen die Tuberkulose heransgegeben vom Generalsekretär Prof. Dr. Pannwitz. Berlin-Charlottenburg: Internationale Vereinegung gegen die Tuberkulose, 1912.

[3] "Consumption Doomed": A Lecture on the Cure of Tuberculosis by Vegetarianism, delivered to the French Vegetarian Society by Dr. Paul Carton. Translated from the French by D. M. Richardson. Pp. 94. London: C. W. Daniel, Ltd., 3, Amen Corner, E.C. 1913. Price 1s. net.

unfortunate that such books should be published to confuse and perplex the undiscriminating man in the street, but we live in a free country, and, as Hume has reminded us, "the fools are a large and influential majority."

MANUALS FOR MEDICAL PRACTITIONERS AND WORKS OF REFERENCE.

Professor Biedl's exhaustive treatise on internal secretions is now available in English form, and is a work which all physicians should study.[1] We would commend the volume to medical directors of sanatoria, for there can be no doubt but that there is a danger, in treating an infective disease like tuberculosis, of forgetting or neglecting the important part played by glandular physiology in the management of the individual patient. The work deals first with the general aspects of internal secretion, and then follows a special consideration of the thyroid apparatus, the thymus gland, the suprarenal system, the pituitary gland, the pineal body, the generative glands, the internal secretion of the pancreas, gastric and intestinal mucosa, and the kidney. As Dr. Leonard Williams indicates in his foreword, the translation is faithful, accurate, and graceful. The work is undoubtedly the most complete, up-to-date, and serviceable contribution to a subject concerning which we are still in much uncertainty, but which nevertheless is of profound importance to the physiologist and clinician. The value of this book for purposes of reference will be evident when it is stated that the bibliography alone extends to 140 pages.

As is generally known, Dr. P. J. Cammidge has devoted many years to the systematic study of glycosuria, and particularly to the chemical aspects of the problem. In a recently-published work[2] he summarizes the results of his researches, and also presents the conclusions of other investigators. His monograph is a masterly presentation of the whole subject of glycosuria and allied conditions. It is written with scientific precision, manifests throughout wide reading, deep thinking, and an unbiassed critical spirit, and is marked by literary grace. Although dealing with peculiarly perplexing and difficult problems, the author has succeeded in making his book eminently readable and such as will be of considerable service to the clinician. For purposes of reference it will be particularly valuable, as there is a representative bibliography at the close of each of the twelve chapters. As Dr. Cammidge shows, "one of the most common complications of diabetes is *pulmonary tuberculosis*, a third to a quarter of all cases dying of this disease." We believe the medical superintendents of all sanatoria should study this important work, and follow up for themselves the researches which Dr. Cammidge has initiated and so well described. Every physician should study the book with thoroughness.

[1] "The Internal Secretory Organs: Their Physiology and Pathology," by Professor Dr. Artur Biedl, of Vienna; with an Introductory Preface by Leonard Williams, M.D., M.R.C.P., Physician to the French Hospital, Assistant Physician to the Metropolitan Hospital. Translated by Linda Forster. Pp. viii + 586. London: John Bale, Sons and Danielsson, Ltd., 83-91, Great Titchfield Street, Oxford Street, W. 1913. Price 21s. net.

[2] "Glycosuria and Allied Conditions," by P. J. Cammidge, M.D. Pp. vii+467. London: Edward Arnold, 41-43, Maddox Street, W. 1913. Price 16s. net.

In our last issue we drew attention to the appearance of the fourth edition of Dr. R. W. Allen's valuable work on "Vaccine-Therapy." We are glad now to be able to welcome another work of equal interest and service from the same author. Dr. Allen has collected his series of articles which appeared in last year's *Journal of Vaccine-Therapy*, and issued them in handsome book form.[1] The work is one of exceptional merit, and will appeal to all physicians, and particularly to those who in sanatoria or elsewhere are called upon to advise in regard to the treatment of tuberculous and other affections of the chest. The book opens with a study of the bacteriology of the respiratory tract in health. Cultural and other methods of investigation are described, and the results of recent observations are critically summarized. The principles and practice of vaccine-therapy are clearly enunciated. The two concluding chapters deal with the mixed infections of pulmonary tuberculosis and the use of vaccines in their management, the infections produced by the tubercle bacillus itself, and the use of specific products in the treatment of tuberculous affections of the respiratory system. The work is one which no practitioner dealing with consumptive cases should neglect. A word of praise must be bestowed on the splendid photographs and photomicrographs which have been provided by Dr. Ralph Vincent.

In view of the forthcoming notification of tuberculous cattle and the recommendations of the Departmental Committee on Tuberculosis in regard to the elimination of bovine tuberculosis and the safeguarding of the milk-supply, Professor M. J. Rosenau's new book appears at an opportune moment.[2] The book is based on the author's "Norman Wait Harris" Lecture, and provides in readable form a reliable presentation of all aspects of the milk problem. The book is appropriately dedicated to Mr. Nathan Straus. The volume is divided into eight sections. First is a clearly-expressed general statement of the problem; then follows a description of milk as a food. This opens the way for disquisitions on dirty milk and the diseases caused by infected milk. Sections deal with provisions for securing clean milk, pasteurization, infant mortality in relation to the milk-supply, and lastly there is a discussion of the best means for the protection of milk "from farm to consumer." Considerable space is allotted to a consideration of tuberculosis and the milk-supply. It is shown that, as regards the milk provided in American cities, 8·3 per cent. contains tubercle bacilli, and "this may be taken as the average percentage for the entire country." The opinion is expressed that "from 5 to 7 per cent. of all human tuberculosis is ascribed to infection with the bovine bacillus. Further, bovine tuberculosis probably causes one-fifth to a fourth of the tuberculosis of infancy and childhood." Professor Rosenau, however, quotes the view of Weber that "the danger from drinking uncooked milk or

[1] "The Bacterial Diseases of Respiration, and Vaccines in their Treatment," by R. W. Allen, M.D., B.S. (Lond.), late Editor, *Journal of Vaccine-Therapy;* late Clinical Pathologist to the Mount Vernon Hospital for Diseases of the Chest; late Pathologist to the Royal Eye Hospital; late Gull Student of Pathology, Guy's Hospital. Pp. x + 236, with 10 plates and 17 charts. London: H. K. Lewis, 136, Gower Street. 1913. Price 6s. net.

[2] "The Milk Question," by M. J. Rosenau, Professor of Preventive Medicine and Hygiene, Harvard Medical School. Pp. xiv + 309. London: Constable and Co., Ltd., Orange Street, Leicester Square, W.C.; and Boston and New York: Houghton Mifflin Company. 1913. Price 7s. 6d. net.

using milk products of cows with tuberculous udders is surprisingly small," and admits that "it will take many years and patient observation to interpret these results." The subject of tubercle bacilli in milk products is also dealt with, and there is also a good section on the prevention of bovine tuberculosis. The book is well illustrated.

The new volume of "The Medical Annual" has just been issued,[1] and a copy should be in the possession of every medical practitioner. There is no need for a notice of this indispensable year-book, for only one advice can be offered: "Get it at once." The present bulky book contains several articles on tuberculosis. Professor Oskar C. Gruner describes the examination of sputum; Dr. F. Langmead writes on "Tuberculosis in Children"; Dr. J. J. Perkins on "Pulmonary Tuberculosis"; Dr. F. D. Boyd on "Renal Tuberculosis"; Dr. Priestley Leech on "Surgical Tuberculosis"; and Dr. Joseph Priestley on "Sanatorium Benefit" and "Tuberculosis Dispensaries." A useful list of "Sanatoria for Consumption and Other Forms of Tuberculosis" is provided. The volume is excellently printed and there are numerous illustrations.

In a previous issue we reviewed Dr. J. B. Hurry's original study of vicious circles in disease.[2] A second edition of this handsome and original work has just appeared. This monograph opens up a new and almost unexplored field of clinico-pathological inquiry. Six fresh chapters appear in this enlarged issue. The "circles" complicating tuberculosis are clearly indicated, and the illustrations merit careful study.

We have received from the Hooker Electro-Chemical Company of Niagara Falls, New York, a copy of a valuable monograph relating to the uses of chloride of lime in sanitation.[3] The work contains over four hundred abstracts and references likely to be of service to sanitarians and all medical officers of health.

A new edition of Mr. C. J. S. Thompson's well-known "Compendium" has just been issued.[4] It contains a vast amount of information in orderly array likely to be of service to practitioners and pharmacists. This is a reference work which should have a place in every dispensary and hospital, and pharmacists will find it an indispensable vademecum.

The recently organized Leicester Public Medical Service have compiled a workmanlike "Pharmacopœia," which may well be recommended as a reliable model for dispensaries and medical clinics.[5]

[1] "The Medical Annual: A Year-Book of Treatment and Practitioner's Index." Thirty-first year. Pp. cxxviii+871, with illustrations. Bristol: John Wright and Sons, Ltd. 1913. Price 8s. 6d. net.

[2] "Vicious Circles in Disease," by Jameson B. Hurry, M.A., M.D. Second and enlarged edition. Pp. xiv+280, with xvi figures. London: J. and A. Churchill, 7, Great Marlborough Street. 1913. Price 7s. 6d. net.

[3] "Chloride of Lime in Sanitation," by Albert H. Hooker, Technical Director, Hooker Electro-Chemical Company. Pp. v+231. New York: John Wiley and Sons. London: Chapman and Hall, Ltd. 1913.

[4] "The Compendium of Medicine and Pharmacy: A Handy Pocket-Book of Reference for Medical Practitioners and Pharmacists," by C. J. S. Thompson. Third Edition. Pp. vi+336. London: John Bale, Sons, and Danielsson, Ltd., 83-91, Great Titchfield Street, Oxford Street, W. 1913. Price 5s. net.

[5] "Pharmacopœia of the Leicester Public Medical Service." Published by authority of the Board of Management. Pp. 20, interleaved with blank pages for notes. Leicester: East Bond Street. 1913. Price 1s.

Messrs. Gibson and Sons of Glasgow have introduced a practical form of pocket day-book for medical practitioners serving under the National Insurance Act. It provides for the registration of 697 names.[1]

The "Transactions of the American Climatological Association" always contain valuable articles of special interest to the physican called to study consumption and other diseases of the chest. The last volume,[2] among much of service to climatologists generally, contains a number of papers on pulmonary tuberculosis, and "The Results of Dispensary Work in the Control of Tuberculosis," by Dr. C. Floyd, and "Chest and Shoulder Pains in Pulmonary Tuberculosis," by Dr. F. M. Pollenger, merit special study.

In sanatorium and tuberculosis farm colony work gardening and other open-air pursuits of necessity have a prominent place. To all in such institutions, as well as to those who love outdoor delights, we commend the 1913 edition of Mr. E. O. Greening's wonderful two-penny popular "annual."[3] It contains much to interest and help all gardeners, and it is generously illustrated.

Another delightful work is Mr. Green's story of a cottage farm, which, besides being a prose poem, is really a very serviceable handbook for those who are desirous of working "a little holding, lent to do a mighty labour."[4] This manual should be helpful to many taking up open-air life for pleasure and profit and health.

The subject of lighting is one of the greatest hygienic importance, and of special interest to medical officers and other hygienists, so we do not hesitate to draw attention to a suggestive, well-illustrated brochure[5] which has been reprinted from the *Illuminating Engineer*.

Dr. G. B. Dixon has published his lectures delivered to Tuberculosis Visitors in brochure form.[6] It forms a valuable model which many Tuberculosis Offices will be glad to use.

Messrs. Burroughes Wellcome and Co. have just issued a dainty little pocket-book manual on Tuberculins.[7]

[1] "The Medical Practitioner's Pocket Day-Book." Glasgow: Robert Gibson and Sons, Ltd., 45, Queen Street. 1913. Price 7d. net.

[2] "Transactions of the American Climatological Association for the Year 1912." Vol. xxviii. Edited by Dr. Guy Hinsdale. Pp. xxxiv + 347. Philadelphia: Printed for the Association. 1912.

[3] "One and All Gardening." Edited by Edward Owen Greening, F.R.H.S. Pp. 128, with illustrations. London; The Agricultural and Horticultural Association, Ltd., 92, Long Acre, W.C. 1913. Price 2d.

[4] "The Cottage Farm, Month by Month." By F. E. Green. Pp. 93, with frontispiece. London: C. W. Daniel, 3, Amen Corner, E.C. 1912. Price 1s. net.

[5] "Light and Illumination: Their Use and Misuse." Pp. 14, with illustrations. London: Offices of the *Illuminating Engineer*, 32, Victoria Street, S.W. Price 3d.

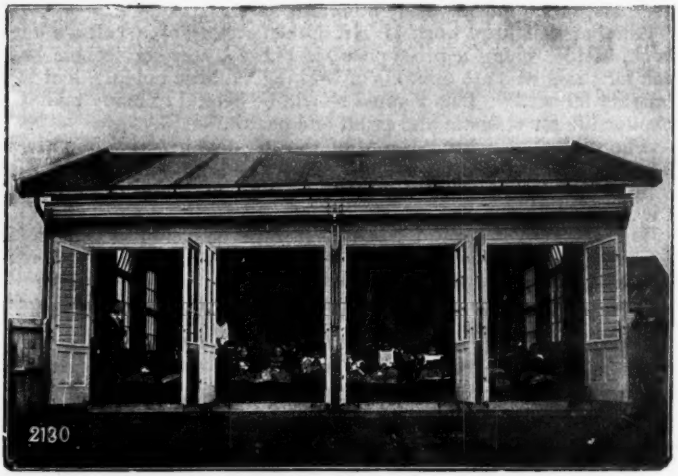
[6] "Lectures on the Prevention of Consumption, Delivered to the Birmingham and Derbyshire Tuberculosis Visitors," by G. B. Dixon, M.R.C.S., L.R.C.P., Chief Sanatorium and Tuberculosis Officer to the Birmingham Public Health Department. Derby: J. W. Simpson and Sons, Ltd., Albert Street. 1913.

[7] "Tuberculins: Notes on their Preparation and Use." A copy will be sent to any medical practitioner on application to Messrs. Burroughes Wellcome and Co., Snow Hill, Holborn, London, E.C.

PREPARATIONS AND APPLIANCES.

SHELTERS FOR TUBERCULOUS SUBJECTS.

THE National Insurance Act is leading to a rapid and considerable extension in the provision of sanatoria and other means for carrying out open-air treatment and the hygienic management of tuberculous and tuberculously disposed cases. Among the requisite equipment SHELTERS form an important element. Much skill and ingenuity is being displayed in the designing and construction of various kinds of



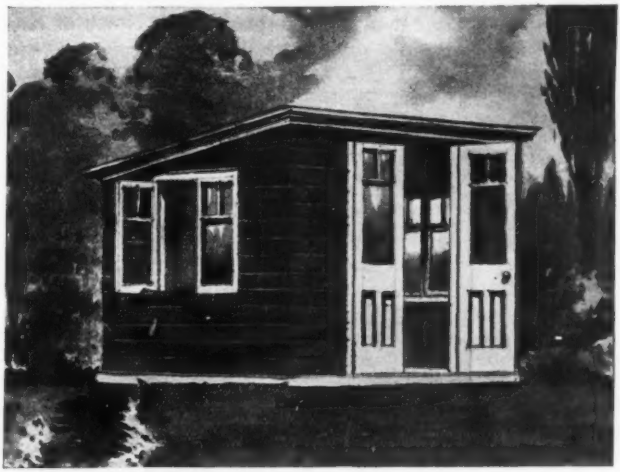
OPEN-AIR SCHOOL AT READING.

shelter. In previous issues of this journal descriptions and illustrations of numerous types have been given.[1] Through the courtesy of Mr. H. Alfred Roechling, of 14, Howick Place, Victoria Street, Westminster, London, S.W., we are able to give an illustration of the large Shelter which is being used as an Open-Air School at Reading. It was erected in June, 1911, and has proved most satisfactory.[2]

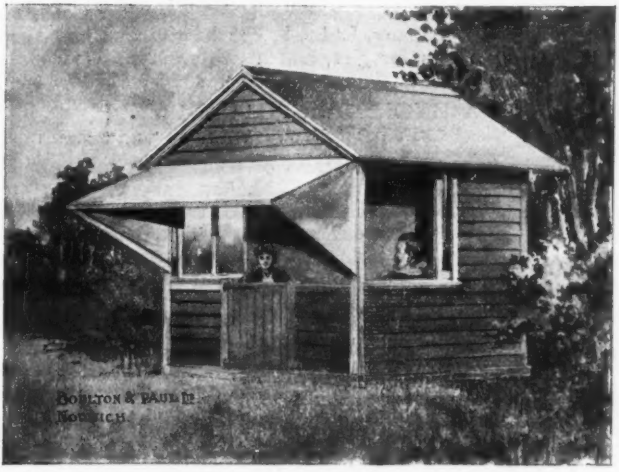
[1] See vol. v., 1911, pp. 153, 154, 155, 320; and vol. vi., 1912, pp. 11, 16, 124, 125, 126, 127, 201, 257, 258.

[2] The Open-Air School at Reading was erected by the Hygienic Constructions and Portable Buildings, Ltd., Stockholm Road, South Bermondsey, London, S.E. This firm supply the well-known Portable Doecker Buildings and they publish an admirable illustrated catalogue of sanatoria shelters and other buildings suitable for consumptive adults, tuberculous children, open-air schools, hygienic workshops, and the like.

Messrs. Boulton and Paul, Ltd.,[1] have also won a well-deserved reputation for the excellence of their OPEN-AIR SHELTERS, SLEEPING



COTTAGE SHELTER, WITH LEAN-TO ROOF.



COTTAGE SHELTER, WITH SPAN ROOF.

CHALETS, and other buildings suitable for tuberculous patients. They have recently introduced several forms of inexpensive Pavilions and

[1] Messrs. Boulton and Paul, Ltd., have works at Norwich and showrooms at 126, Queen Victoria Street, London, E.C. Their catalogues should be consulted by all interested in the provision of structures for consumptives and other tuberculous subjects of all ages and every class.

Shelters for the treatment of tuberculous Insurance cases. The chief features of these are shown in the accompanying illustrations.

A good form of Shelter is indicated in the annexed figure of the DARLINGTON SHELTER. It is manufactured by the North of England

THE DARLINGTON SHELTER.

School Furnishing Company, Ltd. It can be supplied carriage paid in England and Wales for £11, and a cheaper type is available at £7 14s. 6d.[1]

A HYGIENIC SPUTUM POT.

THE "BROMPTON" SPUTUM POT.

In previous numbers we have described various forms of pocket-flask for consumptive cases. For ambulant patients these are excellent, and, indeed, essential; but for many advanced subjects, and especially those who are bed-fast, a well-protected, simple, and easily handled sputum pot is desirable. One of the best has been designed by Dr. Marcus Paterson, formerly of the Frimley Sanatorium, and now Medical Director to the Welsh National Memorial to King Edward VII. Tuberculosis Movement. It is designated the "BROMPTON" SPUTUM POT. It is made of aluminium, is light and easily lifted with one hand, is self-closing, and the lid cannot fall off, although it is easily detached. The vessel is practically indestructible, and can be cleaned and sterilized without fear of breakage.[1]

[1] A full specification of the above shelter will be sent on application to the North of England School Furnishing Company, Ltd., Darlington.

[2] The "Brompton" Sputum Pot is supplied by Messrs. Mayer and Meltzer, 71, Great Portland Street, London, W.

REQUISITES FOR THE DOCTOR AND THE PATIENT.

Under the designation of "OVOLEO," a new form of cod-liver oil emulsion has recently been introduced. We have used it with much satisfaction. It is said to contain 55 per cent. of cod-liver oil, as against the 25 to 33 per cent., or thereabouts, present in many other emulsions. The preparation is certainly a very palatable one, and possesses high nutritive value. Children take it readily, and adults who are nauseated by the pure form of oil can take this emulsion without discomfort. Many preparations have their day of brief-lived popularity and cease to be, but cod-liver oil maintains its position as one of the most valuable nutrients in the management of consumption and other forms of tuberculosis and many similar states characterized by malnutrition. "Ovoleo" is likely to prove a popular preparation in the treatment of tuberculosis and other debilitated states, particularly in children.[1]

Under the name of "TIPPEE" Messrs. Bash and Co. have introduced a reliable petroleum emulsion containing malt, iron, lime, salts, and free iodine. The combination is well designed, and the pharmaceutical preparation has been admirably carried out. "Tippee" is a thoroughly palatable emulsion, and will, we believe, be a valuable adjunct to the nutritive and medicinal management of many cases of tuberculosis.[2]

OVALTINE is another valuable preparation in the treatment of consumptives and other cases of tuberculosis, and particularly for delicate and tuberculously disposed children and young subjects. It is also an excellent nutrient and stimulant for overworked medical practitioners, brain-workers, convalescents, and the subjects of neurasthenic and other debilitated conditions. We have used "Ovaltine," and can recommend it without reservation. It should be used extensively in sanatoria, open-air schools, as well as in the domiciliary treatment of consumptives. "Ovaltine" is a dry granular concentration of malt extract with milk and eggs, prepared by a special process which preserves the activity of the ingredients. It is easily made ready, has a high caloric value, is readily digested and assimilated, is not expensive, and experience has abundantly testified to its value.[3]

PHOSPHOCOSE has recently been placed on the market by the Bayer Company, Ltd., whose other preparations—"Somatose," "Irocose," "Guycose"—we have noticed in previous issues. "Phosphocose" is a brown, syrupy liquid with a pleasant flavour, and consists of somatose with 5 per cent. of sodium glycero-phosphate. This new preparation promises to be of considerable service in dealing with some of the forms of tuberculosis, and particularly for acute and febrile cases of pulmonary consumption and suppurative bone and joint tuberculosis in children. "Phosphocose" is likely to prove valuable in many

[1] Full particulars and specimens may be obtained on application to the Secretary of the "Ovoleo" Company, 39, Victoria Street, Westminster, London, S.W.

[2] Particulars regarding the exact composition and preparation of "Tippee" can be obtained on application to Messrs. Bash and Co., 35-36, Foley Street, Great Portland Street, London, W.

[3] "Ovaltine" is manufactured by A. Wander, Ltd., 1-3, Leonard Street, London, E.C., and is sold in tins at 1s., 1s. 9d., and 3s. per tin. Samples and literature will be sent to members of the medical profession on application.

nervous disorders and in the neurasthenic conditions met with in the course of tuberculosis and other chronic diseases.[1]

ELBON-CIBA is a new cinnamic acid preparation which has been advocated as a serviceable agent in controlling the pyrexia met with in many cases of tuberculosis and infective catarrhs of the pulmonary tract. It is a chemical combination of cinnamic acid with oxyphenyl-urea. It has been used with advantage in a number of Continental sanatoria. "Elbon-Ciba" is put up in tablets, and it is said that the administration should be continued for several months.[2]

The carbonated or "Nauheim" bath has a well-recognized position in balneotherapy. By the introduction of the "ZANA" EFFERVESCING BATH it is now possible to arrange for a "Nauheim" bath in any sanatorium, hospital, or private house. We have recently tested the means provided for the production of this bath, and can thoroughly recommend the "Zana" preparations. The bath is easily arranged, and is most effective. We believe it would prove of considerable service in dealing with not a few of the cases of rheumatic, arthritic, neurasthenic, and other neuro-vascular disorders met with in tuberculous subjects, and especially among patients undergoing open-air treatment. The "Zana" bath preparations are supplied by the Hygienic Company, Ltd. The same firm have sent us specimens of their "HYGOL" BATH ESSENCES. These provide for the production of pine and other aromatic baths with the minimum of trouble and at but little cost. The various aromatic essences are put up in highly concentrated forms, which are in no way greasy and do not discolour the bath or the water. The "Hygol" Aromatic Bath Essences only need to be known to be fully appreciated.[3]

In dealing with tuberculous cases in sanatoria as well as in private practice it is most necessary to pay special attention to dental conditions. In large numbers of cases applying for admission to sanatoria, and, indeed, undergoing treatment in these institutions, the condition of the teeth is commonly deplorable. It seems folly to devote minute care to the supervision of dietetic matters when dental conditions are such as to make proper mastication impossible, and it certainly seems irrational to undertake elaborate measures to prevent or arrest the occurrence of mixed infection when the mouths of patients are allowed to remain veritable hotbeds of sepsis. Our attention has recently been directed to the CAR-MÁ-ME DENTAL PREPARATIONS, manufactured by Messrs. Bash and Co. The chief of these consists of an ingenious provision of tooth-powder for the mechanical cleansing of the teeth, together with a receptacle containing antiseptic blocks for the preparation of an effective cleansing and germicidal mouth-wash. Every patient in a sanatorium would be advantaged much if provided with this admirable equipment. The powder contains much greater cleansing value than many of the dental pastes now so popular, and the antiseptic blocks

[1] Specimens of "Phosphocose" and full particulars will be sent to medical practitioners on application to the Bayer Company, Ltd., 19, St. Dunstan's Hill, London, E.C.

[2] "Elbon-Ciba" is manufactured by the Société pour l'Industrie Chemique à Bâle. The London agency is at 23, Cloth Fair, whence specimen and literature may be obtained.

[3] Full particulars of the "Zana" Effervescing Bath and the "Hygol" Aromatic Bath Essences can be obtained on application to the Hygienic Company, Ltd., 36, Southwark Bridge Road, London, S.E.

have been shown by careful investigations by well-known experts to have high germicidal properties. The "CAR-MÁ-ME" GERMICIDE makes a delightful mouth-wash or throat-and-nose spray. The same firm also supply a good ZINC CHLORIDE MOUTH-WASH, which will be of much service in dental clinics and for use in private dental practice. The "CAR-MÁ-ME" IOGLYCERYL is an iodine preparation which will be of great use in dealing with cases of pyorrhœa, alveolaris, and other morbid conditions of the gums and dental sockets. We are acquainted with the formulæ from which these preparations have been compounded, and can unhesitatingly recommend them.[1]

Many patients of all ages, when undergoing a course of open-air treatment, suffer much from cold feet, and oftentimes are practically crippled by the development of chilblains. To all such—as, indeed, also to healthy persons desirous of increasing their personal comfort—we commend the "SLIPONS" introduced by Messrs. Vaughan and Heather, of Brighton. The "Slipons" are nothing more nor less than under-socks which are worn next to the skin, beneath socks or stockings. Not only do they aid in keeping the feet warm and the prevention of chilblains, but for patients and others taking much exercise they prove a real relief to the feet, and, moreover, they lengthen the life of the socks. We have tested these novel "Slipons," and can fully approve them.[2]

Most hospitals and sanatoria, and also a considerable number of dispensaries, surgeries, and consulting-rooms, are now lighted by electric

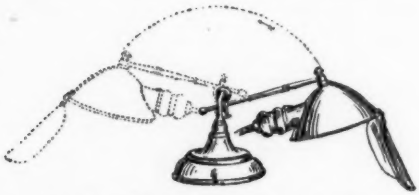
THE "D.G." ADJUSTABLE LAMP.

lamps, but it is quite exceptional to meet with any form of effective adjustable lamp in actual use. A really reliable and inexpensive lamp

[1] Full particulars and specimens may be obtained on making application to Messrs. Bash and Co., 35 and 36, Foley Street, London, W.

[2] "Slipons" are obtainable at 1s. per pair from Messrs. Vaughan and Heather, the Mail Order House, Queen's Road, Brighton.

has recently been introduced under the designation of THE "D.G." ADJUSTABLE READING LAMP, which should prove very popular with doctors and patients. It is just what is wanted for patients in sanatoria and those undergoing treatment in their own homes. We believe, also,



THE NEW "D.G." ADJUSTABLE LAMP.

that it will be greatly appreciated by many physicians and surgeons for their private and professional use. The lamp should be used in every home and institution where an electric supply is available. As will be seen from the accompanying illustrations, the chief point about the

THE "D.G." ADJUSTABLE READING LAMP.

lamp is its wide adaptability: it is a perfect lamp for the desk, provides an ideal light for reading and work, is excellent for the consulting-room and the study, and can be used by a pianist, or employed to lighten the burden of the bedfast patient. Having carefully investigated this new lamp, we can strongly recommend it.[1]

[1] The "D.G." Adjustable Reading Lamp is supplied by Messrs. Drake and Gorham, Ltd., 1, Felix Street, Westminster Bridge Road, London, S.E. Price, in oxidized-copper finish, wired complete, with key-socket lamp-holder, two yards of flex and lamp adapter, £1 4s.

NOTES.

THE TUBERCULOUS CHILD.

We have repeatedly in the British Journal of Tuberculosis urged the wisdom of concentrating attention and effort on the tuberculous and tuberculously-disposed child. In 1908 the Editor of this journal wrote as follows: "In the United Kingdom and America comparatively little has been accomplished towards providing collective action for the safeguarding of children from tuberculosis. Means for the early recognition of the disease are all too meagre. Provision for affording suitable protective care for predisposed cases is scanty, and for children afflicted with active tuberculous lesions much difficulty is experienced in securing adequate rational hygienic management."[1] In a later communication the opinion was expressed that "No extermination of the Great White Plague is possible so long as we remain content to sacrifice our children at the shrine of the Destroyer."[2] At last it would seem that we are awakening to the necessity of caring for all tuberculous children. Sanatoria, open-air schools, and preventoria of various kinds, are being established, and measures are being organized and means administered which promise to accomplish much in the diminution of tuberculous disease among young subjects. Through the courtesy of Dr. C. W. Gaylord and his colleagues, we have been enabled to reproduce two interesting and most instructive illustrations of the Children's Pavilion of the Gaylord Farm Sanatorium.[3] These indicate how the problem is being met in America, and furnish models which may well be imitated in this country.

RECORDS OF PROGRESS.

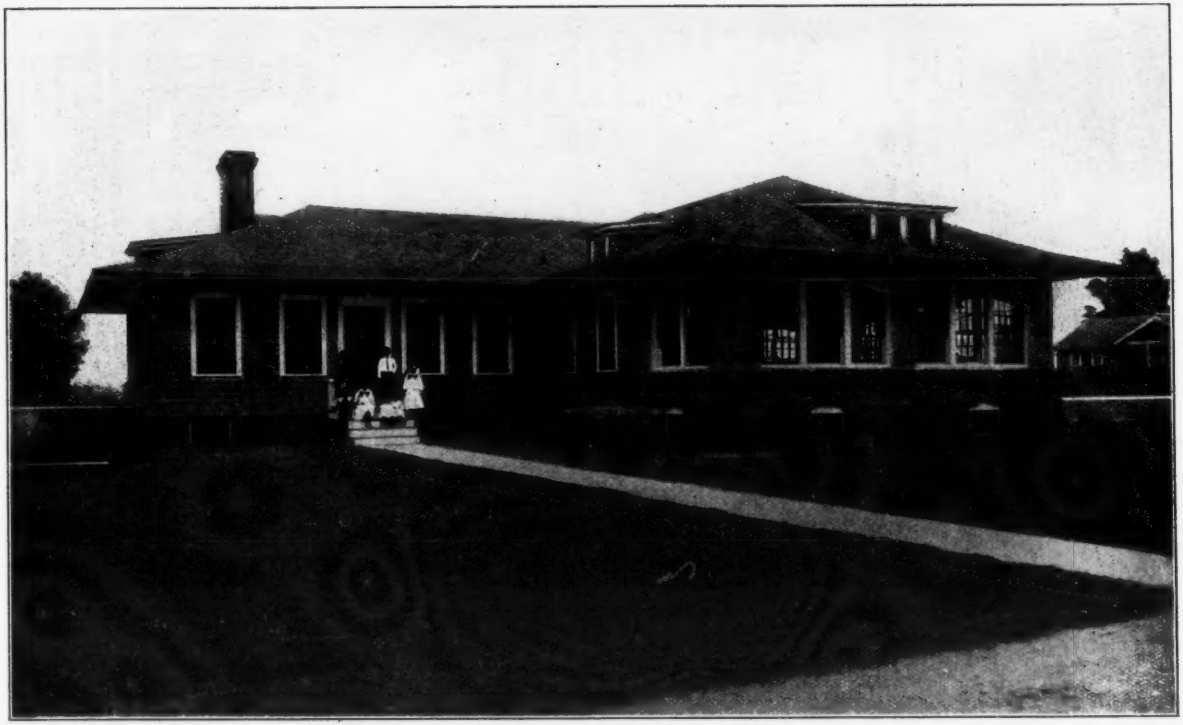
We are glad to be able to announce that the Council of the National Association for the Prevention of Consumption have elected Sir Robert W. Philip, M.D., as Vice-Chairman of the Council, in succession to the late Dr. Theodore Williams.

It has been decided to build a dispensary for the treatment of tuberculosis at Nottingham as a memorial to the late Dr. William Bramwell Ransom, of that city. Dr. Ransom was one of the earliest advocates of the open-air treatment of consumption, and contracted a fatal illness largely through his devotion to patients suffering from that disease. The necessary sum—about £2,200—has already been

[1] "Tuberculosis in Infancy and Childhood: Its Pathology, Prevention, and Treatment." By Various Writers. Edited by T. N. Kelynack, M.D. London: Baillière, Tindall and Cox, 8, Henrietta Street, Covent Garden, W.C. 1908.

[2] Kelynack, T. N.: "Tuberculosis and the Child," *Tuberculosis-Monatsschrift*, vol. xi., No. 12, p. 503. December, 1912. Berlin-Charlottenburg: Vereinigung gegen die Tuberkulose, 137 Berliner Strasse.

[3] See the Eighth Annual Report of the Newhaven County Anti-Tuberculosis Association concerning the Work of the Gaylord Farm Sanatorium. Wallingford, Conn., U.S.A. 1912.



THE CHILDREN'S PAVILION AT THE GAYLORD FARM SANATORIUM.

INTERIOR OF THE CHILDREN'S PAVILION AT THE GAYLORD FARM SANATORIUM.

promised. A marble bas-relief bust of Dr. Ransom, by Mr. F. W. Pomeroy, will be erected in the new building.

The Royal College of Physicians of London make the announcement that the award of the next Weber-Parkes prize and medals, which consist of a prize of 150 guineas and two silver medals, open to members of the medical profession in all countries, will be made in 1915. The adjudicators have selected the following as the subject of the essay: "An Original Research on the Treatment of Pulmonary Tuberculosis with Substances which are especially antagonistic to the Specific Organism and its Products." This work must have been chiefly carried on since the year 1911. The essay must be based on original work and observations (experimental or other) of the author, and must include a detailed exposition of the methods employed and their mode of application. All essays, together with any preparations made in illustration of them, must be transmitted to the Registrar of the College during the last week of May, 1915, in accordance with the regulations relating thereto, copies of which will be forwarded from the College on application. The award will be made on some day previous to October 18 in that year. Further particulars may be obtained on application to J. A. Ormerod, M.D., Registrar, at the Royal College of Physicians, Pall Mall East, London, S.W.

Dr. Hamer in his valuable report to the London County Council deals fully with the problem of tuberculosis in the Metropolis. We are glad to find that the following resolution has been approved: "That it be referred to the Public Health Committee to prepare forthwith, and submit to the Council, a scheme for dealing with tuberculosis throughout the Administrative County of London; that the Local Government Board be informed of the action taken; and that, for the purpose of preparing the scheme, the Committee be authorized to confer with the sanitary authorities, the Insurance Committee for London, and such other authorities, institutions, or persons, as they may deem necessary."

We are glad to find that the University of Manchester, through its Public Health Laboratory, which is under the direction of Professor Delepine, has organized "Advanced Courses on Tuberculosis." The University of Leeds has also arranged, in conjunction with the Leeds Association for the Prevention and Cure of Tuberculosis, for the conduct of a "Course of Advanced Instruction in Tuberculosis." In London the Brompton Hospital for Consumption and the Royal Hospital for Consumption and Diseases of the Chest, City Road, have conducted special post-graduate courses on the diagnosis and treatment of pulmonary tuberculosis. Such instruction is most essential if tuberculosis officers and medical practitioners are to be satisfactorily equipped to undertake the management of tuberculous cases.

Dr. John S. Billings junior, of the Department of Health of the City of New York, has favoured us with copies of recent publications in the "Monograph Series," which we commend to the attention of all medical officers of health and tuberculosis officers in this country.[1]

[1] See "The Registration and Sanitary Supervision of Pulmonary Tuberculosis in New York City" and "The Tuberculosis Clinics and Day Camps of the Department of Health," being Nos. 1 and 2 of the Monograph Series. New York: Department of Health of the City of New York. 1912. Reference should also be made to the excellent "Handbook of Information regarding the Routine Procedure of the Division of Communicable Diseases," issued also by the Department of Health of

The Boston Association for the Relief and Control of Tuberculosis has appointed a "Domestic Science Visitor," whose work is "to see how far the member or members of a family who had been stricken with tuberculosis could be helped to regain health through proper feeding, the knowledge of the value of fresh air having already been widely disseminated." This sensible action seems already to have resulted in much benefit.[1]

Dr. Richard C. Cabot has written an intensely interesting account of "Arequipa Sanatorium: where a Tuberculous Patient can be Cured without Expense to Himself or Anyone else." It is the description of "what Dr. Philip King Brown has established at Arequipa, an hour by rail from San Francisco, near the little town of Fairfax, in Martin County." The article is one which all interested in the successful management of sanatoria will be wise to study.[2]

Professor Saugman of Vejleford has proposed an "International System of Stethoscopic Abbreviations," and these have been recommended by the Fifth Commission of the Internationel Anti-Tuberculosis Association at the Tenth International Conference at Rome, 1912.[3]

We offer congratulations to our contemporary, *The Journal of the Outdoor Life*. It is the American "Anti-Tuberculosis Magazine, published monthly in the interests of the Anti-Tuberculosis Campaign."[4] Dr. Edward L. Trudeau of Saranac Lake contributes "A Foreword after Ten Years" to the February Anniversary number.

In connection with the International Medical Congress which meets in London, for the first time in twenty-one years, in August of 1913, an Exhibition of Rare and Curious Objects relating to Medicine, Chemistry, Pharmacy, and the Allied Sciences, is being organized by Mr. Henry S. Wellcome. This will be one of the most interesting collections of historical medical objects ever gathered together. Among other interesting sections is one including the medical deities of savage, barbaric, and other primitive peoples. Amulets, talismans, and charms, connected with the art of healing, will also form another prominent feature. In the section of Surgery an endeavour will be made to trace the evolution and development of the chief instruments in use at the present day, and it is desired to accumulate specimens of instruments used in every part of the world by both savage and civilized peoples. In Pharmacy and in Botany special exhibits are projected, which will include models of ancient pharmacies, laboratories, and curious relics of the practice of alchemy in early times. Specimens of ancient and unusual materia medica from all parts of the world will also be exhibited. A complete illustrated syllabus will be forwarded to anyone interested, on application to the Secretary, 54*a*, Wigmore Street, London, W., England.

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the City of New York. New York: The J. W. Pratt Company, 52 to 58, Drane Street. 1912.

[1] See the Ninth Annual Report of the Boston Association for the Relief and Control of Tuberculosis. Boston, Mass., U.S.A.: 4, Joy Street. 1912.

[2] See *The Survey* for December 7, 1912. New York: Survey Associates Inc., 105, East 22nd Street.

[3] See the *Tuberculosis-Monatsschrift* for November, 1912.

[4] *The Journal of the Outdoor Life* is published by *The Journal of the Outdoor Life* Publishing Company, 289, Fourth Avenue, New York. Price 10 cents a copy; annual subscription, $1.00.

Professor Elie Metchnikoff of the Pasteur Institute, Paris, delivered the fourth of the "Lady Priestley Memorial Lectures," in connection with the National Health Society, and it appeared in the January issue of *Bedrock*.[1] It provides a comprehensive, scientific, and yet popularly expressed exposition of the present standpoint in the anti-tuberculosis campaign, and is full of hope for the coming advance: "The progress accomplished up to the present justifies the hope that in the not far distant future the great animal *Homo Sapiens* will triumph over the microscopic plant *Bacillus tuberculosis*."

An important paper on "The Mechanism of Infection in Tuberculosis," by Dr. R. R. Armstrong, occupies the first place in the current issue of *Science Progress*.[2] Its view deserves thoughtful study as the following quotation evidences: "Paradox though it may seem to be, by lessening the general risk of infection of the community, the proposed isolation of persons suffering from tuberculosis may actually retard rather than assist the struggle against consumption. What can and should be done is to place all individuals from birth onwards under conditions most conducive to the maintenance of good health, so that they may encounter infection successfully, remembering always that overwork and underfeeding are the surest preparation for the disease." The opinion is expressed that "so far as children are concerned, the boiling of milk may safely be regarded as of secondary importance so long as windows are kept open and floors frequently scrubbed."

The Local Government Board have recently issued an important memorandum on "The Construction and Arrangement of Inexpensive Buildings for Tuberculous Patients," with plans. The document is signed by Dr. Arthur Newsholme, Medical Officer to the Board, and Mr. Brook Kitchin, Architect to the Board, and will have far-reaching influence on the local authorities on whom devolves the responsibility of making provision for the treatment of tuberculous cases.

Dr. A. E. Harris has published a timely report on the Tuberculosis Dispensary, which we commend to the consideration of Medical Officers of Health and their Committees.[3]

[1] See "The Warfare against Tuberculosis" (illustrated), by Elie Metchnikoff. *Bedrock:* a Quarterly Review of Scientific Thought. January, 1913. London: Constable and Co., Ltd., 10, Orange Street, W.C. Price 2s. 6d. net. The lecture has been reprinted, and can be obtained on application to the Secretary, the National Health Society, 53, Berners Street, London, W. Membership of the Society is constituted by an annual payment of £1 1s.

[2] See "The Mechanism of Infection in Tuberculosis," by R. R. Armstrong, B.A., M.B., B.C., M.R.C.S., L.R.C.P., Registrar, Hospital for Sick Children, Great Ormond Street, London. *Science Progress in the Twentieth Century:* a Quarterly Journal of Scientific Work and Thought. No. 27. January, 1913. Edited by H. E. Armstrong, Ph.D., LL.D., F.R.S., and J. Bretland Farmer, M.A., D.Sc., F.R.S. London: John Murray, Albemarle Street, W. Price 5s. net.

[3] "Why a Tuberculosis Dispensary is Required, and What It Is," a Report by Alfred Edwin Harris to the Public Health Committee of the Metropolitan Borough of Islington. London: Vail and Co., 170, Farringdon Road, E.C. 1913.